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TWENTY-THIRD BIENNIAL REPORT
OF THE
NORTH CAROLINA
STATE BOARD OF HEALTH

JULY 1, 1928-JUNE 30, 1930

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TWENTY-THIRD BIENNIAL REPORT

OF THE

NORTH CAROLINA
STATE BOARD OF HEALTH

JULY 1, 1928–JUNE 30, 1930

Members of the State Board of Health

Elected by the North Carolina Medical Society

CYRUS THOMPSON, M. D.
Term Expires 1931

D. A. STANTON, M. D.
Term Expires 1931

L. E. McDANIEL, M. D.
Term Expires 1935

THOMAS E. ANDERSON, M. D.
Term Expires 1935

Appointed by the Governor

JOHN B. WRIGHT, M. D.
Term Expires 1931

E. J. TUCKER, D. D. S.
Term Expires 1931

JAMES P. STOWE, Ph.G.
Term Expires 1933

CHAS. C. ORR, M. D.
Term Expires 1935

A. J. CROWELL, M. D.
Term Expires 1935

Letter of Transmittal

Raleigh, N. C.
November 15, 1930.

His Excellency, O. MAX GARDNER,
Governor of North Carolina.

MY DEAR SIR:—Under authority of chapter 118, Article 1, Section 7050, Consolidated Statutes of North Carolina, I have to submit to you for transmission to the General Assembly the Biennial Report of the State Board of Health for the period July 1, 1928, to June 30, 1930.

Very truly yours,
H. A. TAYLOR, *M. D.*,
Acting Secretary.

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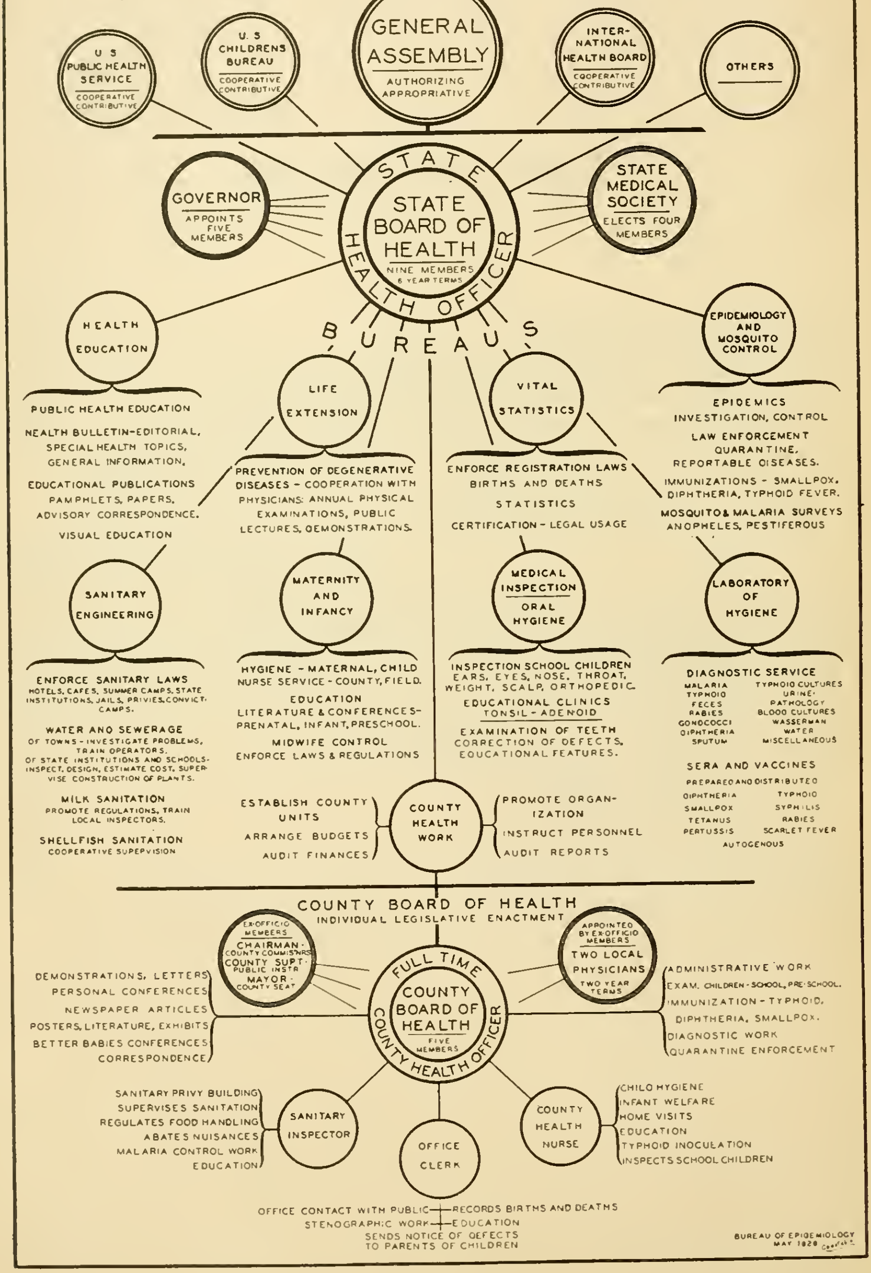
N. C. STATE BOARD OF HEALTH ORGANIZATION & ACTIVITIES



THE STATE BOARD OF HEALTH

ORGANIZATION

North Carolina was the twelfth State in the Union to recognize governmental responsibility for the protection and promotion of the public health of its people, and to create a governmental agency specifically charged with the duty of meeting that responsibility.

In the seventies Dr. Thomas Fanning Wood, of Wilmington, caught the vision of the possibilities of public health work to the State. How fully he grasped the far-reaching consequences of his idea, how clearly he saw the ever-growing hosts of lives saved as a result of his vision and inspiration, cannot be known. It is true, however, that the vision never left him, and that under its sway he worked, through the Medical Journal which he edited and through the North Carolina State Medical Society, until his influence reached the people of the State in their General Assembly of 1877, with the effect that on February 12, 1877, legislation was ratified creating the North Carolina State Board of Health.

Under this legislative enactment the Board in the beginning consisted of the entire membership of the State Medical Society. There was an annual appropriation of $100.00. The State Medical Society undertook to discharge the duties imposed upon it through a committee.

Two years of practical experience proved that such an organization would not meet the public needs, and in 1879 the General Assembly reconstituted the Board, setting up a membership of nine, six appointed by the Governor and three elected by the State Medical Society, the term of office being five years. From time to time since there have been revisions and amendments, but basically the organization plan of the State Board of Health has remained unchanged during these fifty-one years of its life.

The present organization of the Board, as shown diagrammatically in the accompanying chart, consists of nine members, five of whom are appointed by the Governor and four of whom are elected by the Medical Society of the State of North Carolina. The plan of organization includes two important administrative principles the wisdom of which has been tested and proved through the years of practical experience: (1) Stability of organization and permanency of policies; (2) Partnership of the State and the medical profession in the conservation of human life.

The stability of the organization of the Board of Health depends fundamentally upon the Board's freedom from political tinkering. The divorcement of the State Board of Health from politics depends largely upon the manner of selecting the members of the Board. Sudden and marked changes in the personnel of the Board's membership under the present plan of organization are impossible: First, because the members of the Board of Health are appointed for terms of six years and the terms of service of the individual members expire, not in the same year, but in different years. The appointment of new members of the Board is, therefore, gradual and not sudden. Second, the membersship of the Board of Health is selected by two parties: one, the Governor, and the other, the State Medical Society. It is far less likely that two parties naming a Board would be dominated by political considerations than where one party names the Board. This division of the appointive and elective power and this provision for the gradual exercise of that power by two parties guarantees the State Board of Health against the sudden changes of personnel and policy associated with a purely political organization. The State Board of Health is stable. Its individual members come and go, but as an organized body it stays.

This stability of organization is the responsible factor for the permanency of policies adopted by the Board. Political boards elected or appointed for two years or four years are naturally inclined to adopt two and four-year policies, to attempt to make the best showing possible during the short term of their official life. The administrative thoughts and plans are largely defined by the time limitations of their administration. This is not true of a self-perpetuating body such as the State Board of Health; that, as legally constituted, has no limits to its life.

The second administrative principle included in the organization of the State Board of Health is the recognition by the State of the fundamental relation of the medical profession to the work of disease prevention. The State recognizes: (1) the debt of society to that profession by which nearly all of the experimentation and discovery on which disease prevention is based, with the exception of the work of Pasteur, was contributed; (2) the interest of organized medicine in the conservation of human life and the peculiar ability of organized medicine to advise the State as to the methods of prevention; (3) the necessity of securing from the medical profession, first, information in regard to the occurrence of deaths and their causes, and the appearance of epidemics.

EXECUTIVE STAFF

The work of the State Board of Health is large and varied, and is, therefore, apportioned among a number of bureaus, or special divisions, each directed by an administrative head chosen for his special training and ability, and is charged with responsibility for developing and administering specific phases of public health work. The present organization set-up follows:

Administration: Headed by the State Health Officer with general supervision of the entire public health program.

The executive officer is the Secretary of the Board, who is, by statute, State Health Officer. He is elected by the Board for a term of six years. The duties of the office require that this official should be a man with technical training and experience, and, therefore, should be selected on account of his technical rather than of his political qualifications. It is, therefore, right that he should be selected by a specially qualified committee, that is, the State Board of Health, and not be elected in a general election, as would be the case if the office were a political one. The six-year term of office is in accordance with the idea of permanency of policies. The law requires that the Secretary, and State Health Officer, shall be a registered physician in the State, and that he shall not engage in private practice, but shall devote his time and energy to the work of the Board.

The correlation of the work of the several bureaus, to insure a harmonious and efficient administration of the work of the Board, is through the supervision and direction of the executive officer of the Board. The division of the executive staff into special bureaus has the advantage of giving individualism to the work of each bureau and thereby creating a laudable pride and a healthy rivalry among the various bureau directors. While each bureau is separate and independent of other bureaus, the work of the entire executive staff is coördinated, the work of the Board being given compactness by the relation of the bureaus to one another through the executive officer of the Board. The administrative heads of the several bureaus, or directors, are selected by the executive officer of the Board, their terms of service being dependent only upon their success or failure in discharging their duties.

There are naturally many problems and duties which cannot be assigned to any of the special bureaus, which by their nature must be under the immediate direction of the executive officer. These may be briefly stated as follows: (1) to assume primary responsibility for the enforcement of the more important State health laws; (2) to consider and determine, with the advice and consent of the Board, what should be the more important public health policies of the State; (3) to secure the needed legislation that will make possible the adoption of desirable health policies; (4) to supervise and assist in the execution of established policies.

The enforement of law rests, in a general way and broadly, upon the judicial machinery of the State. On the other hand, it is not only the privilege but the duty of any citizen to see that the violation of any law is brought to the attention of the courts and dealt with. The more thorough understanding of the purposes and the character of the public health laws and the keener appreciation of their importance imposes in a special way upon the executive officer of the State Board of Health the duty of seeing that these particular laws are fully complied with.

The duty of considering and formulating for the action of the Board what should be the more important public health policies of the State rests largely with the executive officer of the Board on account of its primary and general responsibility for the development of an effective program of human conservation.

After the Board has considered and definitely decided upon a course of action it becomes the duty of the executive officer to bring to the attention of the people generally the need of the course of action approvd by the Board, and to so inform, interest, and appeal to the public, and reflexively and directly to the General Assembly as to secure legislative approval and provision for the public health policies which have been adopted by the State Board of Health.

The efficiency of any agency is conditioned largely upon the personnel who are employed in its activities. The responsibility of finding and securing persons properly qualified by native endowments, training and experience to direct the special bureaus, or divisions, entrusted with carrying out the established policies of the Board rests almost entirely upon the executive officer.

As has been heretofore pointed out, the organization of the work of the Board embraces a number of special bureaus which are held responsible for some definite State health policy, and which are so organized as to be independent of each other. Naturally, these bureaus and divisions in the character of their work are closely related and some means of coordinating their activities is necessary. This means the executive officer supplies.

The majority of the calls by letter or person upon the Board for service can be and are referred to the special bureau of the Board concerned directly with the sort of service called for in the letter or by the visitor. However, there are a number of calls upon the Board for services that are general in character, or not provided for by some special agency. These services necessarily have to be supplied by the executive officer.

The duty of receiving, disbursing and accounting for public moneys made available through appropriations by the General Assembly, and secured from other sources, in accordance with directions of the Budget Bureau, is a duty that rests primarily upon the executive officer because of his primary and general responsibility for the interests as a whole of the Board.

The methods of work followed depend largely upon the character of the duties which the executive officer seeks to discharge. For this reason it is well in the discussion of methods to relate them to the special duties of the executive officer as above set forth.

Investigations as to the violation of the more important health laws of the State, and the initiating of prosecutions where violations are found, are carried out largely as a part of the special activities of the Bureau of Vital Statistics, Epidemiology, and Sanitary Engineering and Inspection. The responsibility falls upon the executive officer to see that these bureaus fearlessly and without discrimination enforce the important laws entrusted to their execution. The larger work of the executive officer in law enforcement, however, concerns itself with bringing to public attention the principal State health laws and the needs of their careful observance, and in this way building up a public sentiment favorable to the observance of public health laws and sympathetic with the judicial machinery in imposing penalties upon those who violate them.

In determining the public health policies for the State it is necessary: (a) that the executive officer secure information through special and regular reports on the vital statistics of the State, and in this way to be fully cognizant at all times of the vital conditions of the State as shown by the State's birth rate, the State's general death rate, the State's special death rates for certain diseases, the State's death rates by counties, by races, and by seasons; (b) that he secure information, through public health literature, books and periodicals, as to the more recent developments and discoveries in public health work; (c) that then by keeping in touch through conferences with other State health officers and Federal health officers, he be thoroughly conversant with the methods and accomplishments of other State departments of health, and that he be alert to those larger interstate movements, especially those related to action by the Federal Government, in order that whenever and wherever possible these larger movements may be influenced to the advantage of this State.

To secure the necessary measures and appropriations for the development of the State health policies the people are informed, through bulletins, the newspapers, exhibits, addresses, as to vital conditions and as to necessary measures and appropriations for favorably influencing the vitality and physical efficiency of North Carolina people. In this way the effort is made to develop a favorable public sentiment for the development of the more important public health policies. The executive officer further seeks to find and interest certain individuals, qualified by heart and head and position, for influencing, introducing, and supporting in the General Assembly needed legislation.

To find and secure, within budgetary limitations, a personnel for the bureau, division or agency of the Board that is to be relied upon for carrying into successful execution some special and important public health policy calls for an acquaintance with those who are in touch with men qualified for such positions, and a judgment of men on the part of the executive officer. This judgment of men by which an administrative officer selects his assistants is, of course, basic in the success or failure of an administration.

In giving assistance to members of the executive staff charged with carrying out certain public health policies the executive officer attempts to keep in close touch with the work of each bureau or division through regular monthly reports, special reports, and conferences from time to time.

The general work of the Board is a matter largely of correspondence and conference. The correspondence is extensive both in volume and variety, and personal callers at the offices of the Board require a considerable time devoted to conferences.

The book-keeping for all the bureaus is done in the executive office by a system approved by the State Auditor and the Budget Bureau, and all purchases are made through one purchasing agent.

For the biennium the budget for each of the two years approved by the General Assembly of 1929 was as follows:

Administration	$ 29,745
County Health Work	123,415
Sanitary Engineering and Inspection	75,720
Epidemiology	10,490
Health Education	11,410
Life Extension	11,600
Maternity and Infancy	50,580
Medical Inspection of Schools	69,780
Vital Statistics	29,630
Laboratory of Hygiene	97,650
Printing	20,900
Orthopedic Clinics	5,000
Total	$535,920
Less Estimated Receipts	44,450
Net Appropriation	$491,470

Inasmuch as the work of the several special bureaus and divisions are treated in detail in subsequent pages of this biennial report, their functions are here briefly summarized:

County Health Work. Promote the development of adequate public health service in the various counties; supervise and assist organized county units to better serve their communities.

Sanitary Engineering and Inspection. Enforce sanitary laws; supervise public water supplies and sewerage systems; investigate problems of stream pollution; supervise municipal milk sanitation; supervise shellfish sanitation; make malaria and mosquito surveys.

Epidemiology. Enforce laws regarding communicable diseases; make epidemiological investigations; conduct campaigns for immunization against typhoid fever, diphtheria, and smallpox.

Health Education. Prepare and distribute educational literature, including the monthly Health Bulletin; conduct mobile unit in visual education.

Life Extension. Promote periodic health examinations for prevention of degenerative diseases such as those of the heart and kidneys and cancer; conduct special demonstration clinics for the medical profession.

Maternity and Infancy. Supervise maternal and infant hygiene nursing service; conduct prenatal educational service; control midwife practice.

Medical Inspection of Schools. Through staff of nurses render inspection services in public schools; conduct tonsil and adenoid clinics and dental clinics for corrective treatment.

Vital Statistics. Gather through local registrars reports of births and deaths; tabulate and index certificates; keep permanent file of all certificates.

Laboratory of Hygiene. Make diagnostic examinations of various specimens; make bacteriological and chemical analyses of samples from public water supplies; manufacture and distribute various vaccines and sera.

Orthopedic Clinics. Conduct clinics for the correction of orthopedic defects in children.

A Symposium
on
Public Health Education

Papers presented before the Section of Public Health and Education of the Medical Society of the State of North Carolina, meeting at Pinehurst, April 29, 1930.

THE RELATIONSHIP OF EDUCATION TO PUBLIC HEALTH

A. T. ALLEN, LL. D., Raleigh
State Superintendent of Public Instruction

Ladies and Gentlemen, perhaps it is not seemly for a school man to talk on a health program before a distinguished group of physicians. However incongruous it may seem, I am glad to have the opportunity. I hope we shall get on fine together.

Before starting on the little which I have to say, I should like to pay my respects to the medical profession. No one can adequately state the debt which the world owes to the physician. In his efforts to alleviate suffering and to postpone death, he has been successful to an amazing extent. The profession and practice of medicine rests upon a scientific basis as fully as any human anterprise can. With unceasing effort the doctor pursues the facts; with uncanny wisdom he relates them to life. He respects the facts which come out of the laboratory. On his part there is no hesitation when fact and opinion come into conflict. He is constantly on the trail of some elusive and hidden secret. If, at the end of a long journey, he makes a discovery which might enrich him if he capitalized it for his own benefit, he generously dedicates it to the service of humanity. Moreover, his attitudes are largely altruistic; his interest in the welfare of people tends to make him unselfish. His allegiance to a professional code of ethics, his belief in high standards of training, and his impatience with sham mark him for distinction.

I am called upon to speak briefly of the relation between health and education. In trying to trace this relationship, I shall have in mind mainly the institution of public education and the enterprise known as public health. Why do we support education at the expense of the public? What promise does it hold? How does it affect life and the relations of men? Why do we spend tax money to try to keep people well? Do these two public undertakings conflict or harmonize with each other? Let us examine each of them briefly. The sustaining motive of public education has many phases. It has an economic phase because we believe it will make men more productive; it has a political phase, because we believe an educated citizenship will run a better government; it has a strong moral motive because we believe education will help men to behave in a seemly manner and improve their chances of living together in peace. The State in promoting public education is not actuated by motives of philanthropy and charity. It is trying to provide for the economic independence of its citizens—an independence which is to be finally won by the efforts of the individual. The State does not levy tribute on its citizens and spend the proceeds on the schools out of the spirit which prompted the widow to throw her mite into the box, however commendable her action may have been. The State acts under the influence of self-interest and the hope of perpetuation. If the State is to prosper and become great, it must be sustained by the intelligence, the moral stamina and the political sagacity of its citizens.

There is no philanthropy or altruism in such an attitude. History is full of instances in which one person has died for another; a mother for her child; a father for his son; a man for his friend. Greater love hath no man than this. John D. Rockefeller, out of his love for humanity, may give his millions for the benefit of people whom he will never see. When the State invests in the public school or in public health it is looking for substantial benefits to itself, although such benefits may come indirectly. It expects them through the cumulative results of individual improvement.

I conceive of the public school as an effort to enable every child born under our flag to do four things well: (a) *To become an individual in his own name and right.* He wants to be separate and distinct and different from every other individual. He does not desire to be merely one of a group, or a specimen of a kind, but an entity which has value within itself, capable of growth and expansion, and endowed with the power to unfold from within. Such an individual is steadfast and not pliant or subservient. He will not change his outlook, as does the weather cock, with every puff of wind. (b) *To become a self-determining individual.* If in this he succeeds, he will be able to carry his own economic load, to sustain his own moral rectitude and vote his own ticket. The old apprentice system put the individual in a groove from which he could not escape, except by almost superhuman effort. If one lives in a groove, he will go straight. There will be no turning to right or left. There will be no expansion. There is no chance to exercise judgment or choice. He is no wiser at sixty than at twenty. The high school sets the youth on a plane of opportunity. On that level he is free from many restrictions. There is a wide range of choice. Within the limits of his ability, he can determine for himself the direction his life will take. On that level he can free himself from economic slavery and win gloriously his spiritual freedom and political independence. (c) *To become a coöperative individual.* Coöperation implies a degree of equality among the cooperating agents. A group of individuals, each with the power of self-determination, can meet on this level. If there is not a degree of equality among these people there can be no coöperation. The relationship will be that of king and subject; of lord and serf; of master and slave. Without this equality which goes along with individual self determination, society becomes stratified and one group sits astride the neck of another. In America we are looking toward a different kind of civilization, one predicated upon the Declaration of Independence, and we have set up the public school to sustain it. (d) *To become a participating individual.* Democracy means participation. Our whole government fabric rests upon that basis. Every citizen has his part. The State expects him to become capable of playing that part well. This, in brief, is what the school is for. This is what Thomas Jefferson and Horace Mann said it would do for a free people. This is the philosophy which has pushed it forward and caused the American people to pour out their money in almost unlimited millions. In practice, however, the expected results do not always materialize. Health work has come gradually into the schools. More than fifty years ago, physiology became a part of the course of study under the influence of Thomas Huxley. Then the discoveries of Pasteur startled the world. On the basis of this new knowledge, the sciences of hygiene and sanitation were developed. Under pressure from Professor Sedgewick, of the Massachusetts Institute of Technology, their study became a part of the work of the school. The philosophy behind these movements suggested that the health of the people would be greatly benefited by the mere knowledge of these subjects. They doubtless did much good, but knowledge of itself does not affect behavior.

For a hundred years teachers tried to reach the exceptional child through better teaching devices. After they had learned to do the best teaching known, there was still a large percentage of children who did not respond, who did not change their demeanor, and who were still an actual menace to the school and a potential one to society. Then the physicians were called in. Medical inspection of school children was introduced. The whole country was shocked at the tabulations of the results. Great numbers of children suffering from remediable physical defects were found in every school. After a few years of study, the ratio of the several kinds of defects could be predicted with reasonable accuracy. Perhaps even more shocking to the public mind were the revelations made by the physical condition of the men drafted for the world war. With these facts before them, the American people set out to meet the situation in a vigorous manner. Here was a great and new problem for the school and for society at large. The answer was the establishment of larger and more effective departments of health, the employment of school physicians and nurses and the institution of school health programs. In North Carolina we spend on an average about thirty dollars per year for each school child. If for any reason that child fails of promotion, the thirty dollars is lost, when measured in terms of intellectual or moral development. There are many thousand children in this State who fail of promotion annually on account of their physical condition. They not only fail to learn but oftentimes are most troublesome in their conduct. In place of moving towards better citizenship, they become a possible menace to society. How can they work when their bodies are tortured or their minds clouded? A filling in a tooth, a pair of glasses, or an operation on his throat often transforms an obstreperous, backward child into a tractable student, and enables him to make a grade a year. Why spend thirty dollars a year trying to teach a child who is laboring under a physical handicap, when a little medical attention will possible remake him?

The motive behind a public health program might be stated as a three-fold one: 1. economic—to make more productive citizens; 2. moral—to make citizens who can live at peace with themselves and their neighbors; 3. civic—to make every citizen a sustaining member of society and not a dependent one. It is claimed that the people of America lose annually $1,200,000,000 on account of illness. Public health work is intended to reduce that loss. A health program in connection with the school might be stated in outlines as follows: 1. health instruction; 2. formation of health habits; 3. control of communicable diseases; 4. provision of a hygienic school situation; and 5. health service. Each of these main divisions can be listed under many appropriate heads. Health instruction and the formation of health habits belong peculiarly to the teacher. Of course, the scientist must tell us what to teach, but we think we can give the instruction better than the scientist himself. Health instruction is of little value unless the knowledge is translated into habitual conduct. The teacher working with both the parent and the child, is the only person who can deal successfully with it. Through the daily cleanliness examinations she brings about the habits of washing hands and brushing teeth. Through the socialized school lunch they form better eating and play habits. She can also supervise the efforts to improve posture with correctional exercises, make the rest periods most productive of good and improve the eating habits of undernourished children. This can only be done by persons in daily contact with the children. In the matter of immunization, the physician plays the leading part and the teacher a secondary one only. While the teacher after some preliminary training can do something in testing the eyes and ears, every child should have a thorough medical examination by a competent physician at least once every year. The most difficult part of the whole health program is to secure the correction of the defects after they have been discovered and tabulated. One way is to notify the parent of the trouble and make an estimate of what the work will be worth. The parent then takes the child to a physician for treatment. In many cases, the parent is either too poor or too hardened in his ways to give attention to the matter. In such cases the whole thing comes to a stop. The dental and health clinics for school children have done worlds of good already. I am wondering if the follow-up work will not more and more result in dental clinics in which the teeth of the smaller children are treated. This will not interfere with dentists in private practice, but will bring them in the long run more practice; because the children find out what it all means. In the same way certain other simple operations might be performed by some surgeon employed by the State. There should, of course, be left an option with the parents as to what physician will do the work or whether the work will be done at all. If the State stands ready to do it without expense to the parent, many more parents, in my opinion, will have it attended to in private practice.

The schools have one justifiable complaint against the public health service. It is inclined to consider too little the value of a child's time in school. We wait until school opens and then begin feverishly to vaccinate. For two or three weeks the school is in confusion and is operated under great difficulty. Children with sore arms are irritable and cross. Many of them remain out of school. The spirit of the school is broken down and it is hard to re-establish. Furthermore, school hours are usually selected for medical examinations. Children are excluded from the public schools on account of contagious diseases, but the Sunday schools and churches go ahead. I am unable to see why a child would not catch influenza at moving picture shows as readily as in school. Schools are in session only six hours of the twenty-four, and for only 160 days out of the 365. Every day and every hour of that time should be devoted to the school's own program of activities. If remedial and immunization work could be carried on at hours and on days when the schools are not in session, much loss of time and unnecessary confusion could be avoided. If the schools are to do the work which has been assigned them, they will need every bit of the allotted time.

The most promising and sensible development bearing on the health of school children is, from the standpoint of the school, the pre-school clinic. If all the children could receive the necessary medical attention during the first six years of their lives and before they start to school, they would, in my opinion, be much better off. I know it would greatly improve the school situation. This is now being done, to a considerable extent, in many communities. I hope it will continue until much of the work now being done during the school session will be attended to before the opening of school. The pre-school clinic rests upon the idea that a child shall have had all the apparent and necessary medical attention before he starts to school. Every bit of remedial and immunization work which is done before the child enters school greatly facilitates the whole program. If the health service could find some way to combat contagious diseases without so much loss of time from school another great advance would be made, and it would be entitled to the unstinted thanks of the schools as well of the taxpayers themselves.

Teachers, of course, do not understand all of the fine points of a physician's code of ethics. We are not concerned with the methods which shall be used to bring relief to the school children. Whether it is done by physicians in private practice or by the health service itself is not a question for us to determine. We know, however, that it must be done if the schools are to function efficiently. Every school child has the same right to the proper medical attention that he has to an open schoolhouse door. Even if the ability of the child to his school work were not affected by the medical service, it would still be worth all it costs in the happiness of the individual and in the prospect of a finer attitude on his part toward the world about him. These two public agencies must work in the closest coöperation because each is dependent in many ways upon the other. Unless you manage to keep the children well, we can not teach them effectively. On the other hand, unless they are taught well you will have no vehicle through which you can spread your philosophy of public health. The more intelligent your community is, the easier it is for you to keep it well. How far can you get with a health program in a community in which all the people are ignorant? Health and education naturally grow together, otherwise they atrophy separately. The two enterprises rest upon the same philosophy of public service, and have the same general objectives in the advancement of civilization. For my part, I pledge you that the schools will do their best to meet you half way in every effort to improve the physical well-being of the childhood of this country. Through such a joint program we can visualize a civilization in which there will be fewer dependents, and in which a larger percentage will be able not only each to carry his own load, but also to bear his proportion of the joint load which failure and misfortune place upon every community.

THE RELATIONSHIP OF PUBLIC HEALTH TO HIGHER EDUCATION

E. C. Brooks, LL. D., Raleigh
President, State College of Agriculture and Engineering

Mr. President, Ladies and Gentlemen, it appeals to my vanity, when I think that I am qualified to become a member of this Society. And this gives me an opportunity to outline to you to some extent my training in order to prove to you what I have just said. When I was superintendent of a city school system, discipline came under my supervision. I learned to operate adroitly on the whole body, and succeeded admirably, so they said! When I became connected with Trinity College as head of the Department of Teacher Training, it was very interesting to me to observe mental differences, and joy sometimes would come when I could observe the appearance of intelligence, and I learned the value of the clinic. When I became State superintendent of Public Instruction it was a part of my work to relate the profession to business, and I have some understanding of the meaning of fees. But I think the best training that I have received and which qualifies me best to become a member of this body, has come to me since I became the chief executive of a large educational institution; for I have learned to use the gentle art of mental suggestion in such an adroit way that when I am noncommittal it's difficult for those interested to understand whether that attitude is due to lack of comprehension or to ignorance.

I have taken some liberties with my subject and shall discuss it rather from the standpoint of the relation of higher education to public health, than as you have it stated in the program. I know that in every discussion of public health, our minds naturally turn to a consideration of the greatest good to the greatest number. And that is right. But I have chosen this afternoon to emphasize, rather, the individual.

I received some months ago a little volume called the Story of a Pine Tree a Thousand Years Old. I shall give you the outlines of that story, which will serve as a parallel to my theme. It was born, according to the story, in 856 and was taken down in 1903—when the march of progress demanded its removal. Scientists desired to make a study of it, and they proposed to take it apart, layer by layer, in order to learn its life history. At the age of twenty it received some injury, probably due to a snowstorm, that gave it curvature of the spine; but it overcame that, and for a hundred years it experienced a rich growth; then came years of hunger and famine, and the layers were so thin that the scientists could hardly detect the growth. At the age of 140 it was injured by a falling tree, and in its side was stuck a limb, that started decay; but for nearly two hundred years it had rich growth again. Then violent storms attacked it, tore away its branches and apparently stunted its growth for the time being; insects and other disease producers entered its body. Afterward life came back in its fullness, and the disease or the attack was covered up, and nothing of these save the scars seem to have remained.

At the age of 630, arrowheads were driven into its base. This tallies with history, for they appeared when the Cliff Dwellers came to the southern Rocky Mountains. The Spaniards came, thirty years later; bullets testify to this, also the marks of an axe on its side; for civilized man is the only one that applies the axe in such destructive manner to a growing tree. In 1804, droughts appeared; our history shows that this period is one of the great droughts throughout the country. This was followed by earthquakes in 1812. You may recall that it was about that period that the Creeks had their great uprising in Tennessee and throughout the south, and General Jackson was called into play, and there made history. They were excited to this revolt by this great earthquake, the signs of which appear in the old pine tree. In 1859 some one had blazed on its side long marks indicating a blazed trail, and that is about the time the southern route was opened from the east to the gold diggings of California. In 1903 it was taken down.

The remarkable fact is, not that it was attacked by disease or by its natural enemies or by storms: the remarkable thing is that life came back, and when it was taken down the cellular life was as rich and as strong as it was at the age of twenty. Another remarkable fact is, that in the same soil and in the same climate and in the same area, countless thousands of trees were born and died. They did not have the vitality to renew themselves as they were attacked by their common enemies. And this, ladies and gentlemen, is the parallel of my theme. Not that disease appears, but that life returns is the phenomenon that attracts the admiration of the world!

I shall take an individual and parallel the tree, and ask you, in your imagination to let's take him apart, layer by layer, as we have done the old pine tree. I am taking a man eighty years of age, who is in full possesssion of his faculties, whose mind is alert, and whose body is still remaking life for itself. In my imagination, I find that in childhood it was attacked by infantile diseases, good health seemed to disappear, and poor growth and lean years came to the infant. Then life rushed back, and in the early years and in adolescence it grew normally, and the rings' show rich growth. In later adolescence we find it shaken by some kind of internal disturbance that we can't understand; it may have been religion, or social antagonisms that wrenched asunder the relationship between mind and body; and there were a number of years of lean growth and decay set in. Then life came back again, covered up the scars that were left as a result of the attack by internal storms or by outward enemies. In middle life, between forty and fifty, we find evidences that decay set in, and dissolution was threatened, due perhaps to business or profession, or to domestic or anti-social conditions, or perhaps to some physical defect. We can't tell whether the beginning was mental or physical. But life rushed back again, and for a period of thirty years there was coördination and harmony and rich life. Was the cause mental or physical? There the parallel breaks down between the man and the old pine tree! What was the secret of the constant return of life?

That is the riddle of the Sphinx; and it's the most modern question of today. How much of our time is spent on the causes of disease?

I am concerned as I stand before you, not so much with the disease, because countless thousands are attacked by the same disease and go down before they reach the average ago of fifty-eight; but what causes life to return in its fullness and to build the cellular life, such that I can stand before you today, apparently, Mr. President, in full possession of my faculties.

John Locke said it 250 years ago, "A sound mind in a sound body, is a short but full, description of a happy state in this world." There is nothing new for us to add to that. The question comes back to us, how to produce the sound mind in the sound body and create a harmony that will give us perpetual life, even if we have to suspend in this world and continue in the next. Higher education, ladies and gentlemen, is concerned more and more with the sound mind in a sound body, which means the harmony of body and mind; not the two at war. Mental disease is, in higher education, not receiving sufficient attention. Mental and physical tests today, though so imperfect that they can not be followed altogether, are in the right direction. And a wonderful advance has come as a result.

Higher education sometimes neglects the individual, but its tendency is to make a study of the whole individual. Sometimes its results have been fallacious. More than a hundred years, with the rise of modern public education, higher education gave sanction to the theory that the more the intellect in the little child is stimulated the more advantage will he have. As a result of that theory, we had the rise of the infant school, and little children entered school at the age of one and two years and memorized the subject matter of adults. And each country held up as a prize its precocious child. In Norway, it was said that a two-year-old child could recite the history of every crowned head of Europe, several chapters of the New Testament, and a chronology of the world. In France, they set forward one precocious child who could surpass the child of Norway; then in Hartford, Connecticut, we had a prize baby exhibited. The fad ran for twenty years. Then higher education began to discuss the results, and after tabulating the effects over the twenty-year period it was learned that precocity might be a disease more dangerous than curvature of the spine. Most of those brought forward died early or were confined in homes for defectives. Hence, the old folk story, that a child may be so smart that it will hardly reach the age of maturity.

Froebel, one of the greatest philosophers that higher education gave to elementary education, spoke of the divinity, within, and the harmony of body and soul, and taught that it could be perfected and developed by the right kind of plays and games, and hence we have the kindergarten. Following that we have had a rise of physical education in our higher institutions, which even today is in its infancy, but augurs well for the future.

I wish to give you a little of the results of some of our experiments at State College as a result of the establishment of our department of physical education. Every student entering is required to stand a physical examination, when his condition is charted and indexed, and at the end of the year we compare this chart with his scholastic record. In the meantime we notify his parents if he has certain physical defects that should be corrected. We have had to drop this year around a hundred students because of a lack of scholarship attainments. A little more than 80 per cent of those that were dropped from college had diseased tonsils. And we are raising this question today if we shall not require all freshmen entering who have diseased tonsils to have them removed before we shall permit them to enter college, thus placing the same emphasis on that disease that we place on typhoid and smallpox. The second defect is malnutrition, the third is curvature of the spine, and a lack of coördination of body and limbs.

We haven't collected sufficient information to give anything like scientific results from the study that we are making; it will probably take five or ten years more to classify this material and reduce it to some kind of formula. But it seems to be evident that athletic training is becoming too severe, especially for the immature boy in college or in high school. We shall be interested to follow these data, to see after the student has left be none the the worse, or perhaps better, as a result.

Higher education is becoming more and more interested in the diet of the people. We are studying today vitamine contents, and are making tests in laboratories all over the country. There is practically nothing new in it except the scientific application. Long before the classic age of Greece, vegetables, it is said, came into use largely because of the medicinal properties which they contained; cabbage was used as a remedy for drunkenness, asparagus for disgestion, beets for the blood, cucumbers for their healing qualities, and garlic was used to arouse the valor of warriors, it being rationed out just before the action. Parsley gave the brain agreeable sensation, onions were tonic, hyssop purified the blood, thyme was antidote for serpents' bites, ginger was good for scurvy, and asafetida was the chief seasoning quality. Evidently tastes, as well as styles, have changed! That brings us then, if we are to study diet, to the study of the relation of soil and climate to health.

Julian S. Huxley, in the current *Atlantic Monthly*, discusses the relation of the chemistry of the soil to health. This article contains some very interesting suggestions. In many parts of the world animals have a tendency to eat bones and carcasses of other animals because the soil is deficient in phosphorus and so are the plants in that area, hence dwarfed animals are the results. In New Zealand the missing element is iron. Animals suffer there from anemia, because the plants do not contain this element in sufficient quantities. In parts of the United States and Canada, and in many other parts of the world a lack of iodine causes a disease of the thyroid. Pellagra is on the increase in the south, due to an improper diet.

Health may turn on the kind of pastures we maintain. The grass on which the animal feeds, the milk that goes to the children, and the meat that goes on the table, may be deficient in the proper element—although the Chambers of Commerce may advertise that a certain territory is rich in a given vitamine content. It may be necessary to consider the kind of pastures we should have before the Live at Home campaign can operate successfully with cotton and corn and tobacco as competitors.

Our diet is changing; less meat and bread, more vegetables and milk products and poultry products are being used. But is the soil capable of producing or supplying the vitamine elements that the food is supposed to possess? Because it is the right kind of vegetable is no guarantee that the vegetable contains the vitamine contents even when the soil possesses it. A people or clan may pass away through a change of diet.

In conclusion, let me summarize as follows: Higher education if it is to make its rightful contribution to health, must be concerned through research and experimentation, as well as by instruction, with mental and physical defects, and the relation of the two. The teacher and the physician must form better coöperative relationships. Second, physical education and relation of health to intellectual progress is just coming under the microscope, we may say, for a study, and in years to come we may be able to understand something of the mental in its relation to the physical, and how one affects the other. Third, the relation of diet to agriculture, the relation of health to industry, the relation of the moral consciousness of people to a harmonious life of all of its citizens are vital topics in a scheme of higher education.

THE INFLUENCE OF PUBLIC HEALTH AND EDUCATION UPON THE IMPROVEMENT OF THE HUMAN RACE

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Just as individual cells unite to form a tissue, and tissues an organ, and organs a system of organs, and systems of organs an organism, so we may think of individual persons uniting in a family line and lines in strains, with a certain pigmentation, stature and physiognomy, and strains in types, and types in races, and races, with progressive differentiation in isolation, issuing in species. There is as yet but one species of man. It is not probable that there will be others; for the forces which have molded man into the primary races—White, Yellow-Brown, and Black, with their daughter races—appear to have about expended themselves. Variations will continue to arise, but no new sets of external conditions are left unoccupied to favor and consolidate them. The isolation which protected incipient variations against being dragged back into the ancestral type is isolation no more. The applications of science are levelling barriers, facilitating communication, and multiplying contacts, so reversing the conditions which favored racial differentiation. Even now you can drive no wedge into this human complex and split it into absolutely distinct units. High authorities declare that the races which we now recognize are unstable, mixed, and merge more or less with other racial groups. They are freely miscible, and the assumed sterility, weakness of offspring, and ultimate extinction of mixed bloods must be dismissed as wanting scientific support.

Accordingly, the stage seems to be set for another drama, as long as Bernard Shaw's *Back to Methuselah*, wherein the common origin of the races of man will reassert its stabilizing power, and as the generations pass reduce diversities as slowly as they evolved, and eventually draw back the far-wandered children into a common type again.

One thing is clear and sure. The human stock is plastic. Like the whirling clay under the pressure of the potter's hand, it may be molded into forms of strength and beauty express and admirable, noble in reason, infinite in faculty, in action like an angel, in apprehension like a god; or into forms of weakness and distortion: of the same lump of clay, a vessel made unto honor and another unto dishonor. Another thing is clear and sure. The clay is variable in quality and temper. It is quite vain to insist that the only differences among the races are differences of opportunity and training. The brain of the belated groups is not of equal potentiality with the brain of the groups which have made the modern world. While diversities of racial physique are not of species value, some biologists hold that diversities of mental constitution are pronounced enough to warrant classifying them as distinct "mental species." And since the brain is the master tissue and mind the dominant organ of man, his excellency lies back of his brow, and the peril of degeneracy is there also.

Now, our topic requires us to consider the forces which play upon this plastic and responsive stuff of human kind, with especial reference to its improvement. In the ancient mythology the three Fates, who were daughters of Necessity, determined the destiny of men. In modern biology the three Fates become three Factors, which may be conveniently thought of as the three sides of the triangle of Life. They are Environment, Training, and Heredity. To you these are familiar conceptions, but for the sake of a point of view it may be of service to take a moment to recall them.

Environment means the total situation into which one is born. It includes life's physical surroundings of climate, food, shelter; also the climate of opinion and sentiment, the intellectual and moral standards, social conventions—all the forces which play upon life from without.

Training as here used covers all our activities, our work, our play, our intercourse. For our deeds determine us and our fellowships educate us. Even formal education is not so much reception as awakening. The contacts malevolent or gracious which we establish with our contemporaries or with our predecessors surviving in books awaken and draw us out. It is the active effort in response which constitutes education. And character conceived as the end of education is the sum of our organized responses.

Heredity is the third factor which determines the individual life. It is a process and a relationship by which offspring tend to resemble their parents; it is resemblance based on descent. It supplies the substance of life, the material upon which the other factors operate. It ordains our inborn gifts and capacities, our limitations, weaknesses, defects. It sets the boundaries beyond which no favoring external conditions, no intelligence or assiduity of training, no passion of ambition is ever able to transport us. And I remind you that environment and training affect only the existing generation, but heredity affects all succeeding generations. As another says, wooden legs are not inherited, but wooden heads are. Environment, training, heredity,—these three, but the greatest of these is heredity.

Suffer a word of caution here. Do not think of these factors as sharply distinct and independent; much less as contestants in making or marring the human stock. Environment and training coöperate with heredity in producing any feature or characteristic of the organism. No characteristic is determined exclusively by the environment, and none exclusively by heredity. In the efficient organism it is essential to have the right materials, and these are supplied by heredity. But it is equally essential that these materials "should interact properly with each other and with other things; and the way they interact and what they produce depends on the conditions" (Jennings). Add to these complex interactions the eight or ten chemical regulators, the internal secretions, which control growth and development, and you face an amazingly intricate and baffling problem of analysis. You will lose not a little of the assurance inspired by the marvelous discoveries of some fifteen years ago.

Permit me now to ask your attention to a curious fact. There appears to have been little improvement of the human stock within the historic period. It is Sir Francis Galton's judgment that two centuries of Athenian history (B. C. 500 to B. C. 300) made a larger contribution of men of genius than any two subsequent centuries. English as he was, he said that the Athenian race of that time was as superior to the present English race as the English race is superior to the present African race. Certainly men of Athens eighty generations back of us set standards in philosophy, art, letters, and statesmanship which are the despair of all the later time! Professor Conklin of Princeton has no doubt that human evolution has halted either temporarily or permanently. The human brain, which is the highest structure of the evolutionary series, has not increased in size since the time of the Cro-Magnon race, 20,000 years ago. The prevalence of nervous disorders indicates that the nervous system is less harmonious and efficient than formerly, or that it is losing its power of adaptation to changed conditions. Witness, further, the increasing percentage of defect.

In striking contrast with this apparently stationary biological inheritance, not to say racial deterioration, the social inheritance of the race has extended enormously in complexity and range. Man's world of activities, apparatus, body of knowledge, laws, institutions, has developed faster than man's capacities. A grave problem emerges just there. We have the machine, the weapon, but lack the wisdom and conscience to put them to right uses. We are not unlike our New Guinea contemporaries of the Neolithic age set down of a sudden on Broadway.

What is the explanation of this anomaly? I offer some considerations.

In the first place, during all the lapsing centuries the emphasis has been strong upon environment and training, slight or nil upon heredity. The difference between the old world and the new relates to environment and training. Civilization itself connotes the improvement of these two external factors. We have forgotten the type of manhood and womanhood to which alone the significance of any civilization is due. When they showed the eminent historian Renan through the brilliant corridors of the Paris exposition and pressed him for his impression, he said, "I have been thinking how many exquisite things there are that we can do without."

And then—you must allow me to say it—one of the invincible obstacles to race improvement is doctors. It is true, according to Pliny, that Rome got on without them for six hundred years, but that easement was local and transient. You see, in cases of weak or degenerate stock the doctoring has been palliative, not remedial and preventive. Of course, care and relief are as noble as necessary, but they are costly and superficial as compared with the effort to forestall. Doctors and nurses and hospitals, at once the token and crown of civilized life, have intercepted the action of the law of natural selection, which under primitive or barbaric conditions would have eliminated weak and degenerate stocks. You receive the weaklings and skillfully nurse them up to maturity, when by the neglect and ignorance of society they are allowed to multiply their kind endlessly.

Beside this pollution of our best blood, which is our most precious possession, it has been spilt by the hogshead to fertilize crops in silly and criminal wars.

Again, there has been a conspiracy of silence on this fundamental matter by all the agencies of enlightenment—the home, the school, the press, the church. For the most part it has been curtly dismissed as "not nice," as a fad in vulgarity. The superstition that a certain percentage of disease and defect registers the decree of Providence has been influential. The canker and tragedy of the social evil has been condoned as "necessary," humanity rots at the root, and we acquiesce. It is further said in justification of this silence that there is peril in bringing the phenomena of sex into the focus of attention. Better let sleeping dogs lie. Moreover, the attitude of reticence and mystery in regard to the physical basis and connotations of love refines it to a spiritual attraction and decorates it with the embroideries of sentiment and romance. To open out its evolutionary history and its hereditary issue can only degrade it and turn a herd of swine into life's holy of holies.

Now at length, however, this conspiracy of silence is broken. The Lambeth Conference of Anglican bishops declared in 1920 that the time for such a policy on such matters was gone. A discreet book for the guidance of young people held up as obscene the last month in a Massachusetts court has been released as legitimate. Public health agencies have at last found their voices, and their bulletins of information will exert their most important influence, not in showing people how to destroy wiggletails and to feed babies, but in educating them about babies with a better heritage. We have seen the peril of feeble-mindedness and insanity multiplying under the cloak of silence. Nearly two million of our people need institutional care. One-half of these defectives owe their defects to heredity and unrestrained will reproduce their defects in geometric ratio. Five million of us are unable to master the primary grades of the public school. Twenty million are capable of only superintended labor. This scrub stock and the progressive degeneracy of the race which it prophesies presented a social emergency before which no social convention could stand. And the dogs were found not to be asleep. Innocence was already violated by an underground system of education—by means of ignorant nurses, the gossip of unclean and misinformed companions, quacks, patent medicine venders, sex books, and personal adventures.

Allow one other consideration. While the size of the American family has been declining since the eighteenth century, enough babies are now born for our increasing native population. The insistent question is, "Born, but in what homes?" The upper grades of capacity are not maintaining themselves; the lower show an amazing fertility. The graduates of Harvard have .7 of a child on the average; of Vassar .5. A feeble-minded couple has an average of 7 children. At this rate, two hundred years hence a thousand Harvard graduates will have fifty descendants, but a thousand Roumanian laborers of Boston will have one hundred thousand. Recent biological opinion appears to favor general birth control as the only effective corrective of this menacing differential birth rate.

It remains to ask what is to be done for the improvement of the race. The answer is easily made, but its practical application is thronged with difficulties. It is a common place of practical biology today to control heredity for the improvement of the stock of animals and plants. This has been done by selective breeding. The question is whether a like care and method would work in the case of man. There is now no doubt among men who have right to an opinion on the matter that while man walks at the head of the animal procession, he belongs to it, and that the processes and laws of heredity observed in the lower orders of file are operative in him.

Some persons like Gilbert Chesterton and Bernard Shaw, and some newspapers make merry with the science of eugenics because they do not take the trouble to inform themselves. It is not free love, or trial marriage; it is not killing off weaklings, not breeding people like pigs and poultry. It has no program. It is merely the study and guidance of the agencies within human control which will improve or impair the inborn qualities of future generations. Positive eugenics seeks to promote the increase of the best stocks; negative eugenics seeks to promote the decrease of the worst stocks. With all our lately acquired knowledge, I do not think we are ready to undertake selective mating of the fittest for race improvement. Beyond question we are ready for restrictive mating to eliminate the obviously unfit. Care for the feeble-minded, the insane, the epileptic, the inebriate, the congenital defective of any type, the victim of chronic contagious disease, care for them with intelligence and humanity, but deny them, in one way or another, rigorously and inexorably, the opportunity of perpetuating and multiplying their kind to the inevitable deterioration of the race.

THE SOCIAL AND ECONOMIC ASPECTS OF HUMAN AILMENTS AND PUBLIC HEALTH

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Mr. Chairman, Ladies and Gentlemen, the social aspects of human illness and public health embrace more or less all the satisfactions and dissatisfactions of human life. Human illness enters so constantly into the thread of events which make up individual and collective life, that for lack of time we will forego further allusion to the social aspects of our subject. The economic aspects of human illness and public health cannot in my judgment be more intelligently portrayed than by: (a) arriving at the economic value of men en masse; (b) indicating the cost of disease; (c) presenting the salvage which can come to society through the practice of disease prevention and through the promulgation of public health activities. The social aspects of the subject will compel the admission that life and health have a higher value than money, in that they give value to all things else. Life and health are ends in themselves—the conservation of both needs no justification. One cannot, however, make clear the economic phase of human illness except by the presentation of the subject on a financial basis. As gruesome as it is admitted to be, I shall attempt through the portrayal of the work of other men to discuss at least one narrow aspect of life, namely, the actual cost of maintenance on the basis of dollars and cents. Having done this, I will undertake to show the potential productive value of human beings themselves at only three periods of life, and, lastly, it is my purpose to give you a glimpse of the economic salvage that has come to the world through the practice of disease prevention and public health.

We Americans habitually emphasize the importance of our national wealth in terms of real property, machinery, manufactured products, natural resources, and so on. So centered have we been upon this, that we have seemingly forgotten that human life is the nation's greatest asset. We have not quite appreciated the economic value of human beings and their health. Of course, when earnings cease and expenses mount because of illness, individuals affected thereby give concern to the individual problem. When the bread winner of a family is removed through accident or disease and the family has to become self-supporting, the individual family and perhaps the individual community, comes to know the individual economic loss which has been sustained by the family and community. But in viewing our human resources as a whole, we have not yet come to appreciate the economic features contained in saving human beings from disease; nor have we come to the full understanding of what a profitable investment, nationally speaking, life conservation is. In other words, what does it cost to bring up a child to the age of eighteen, or to the age when the child comes to be self-supporting? What are the future earnings of that child after he is weaned from his family and from the paternalism of the State?

A cross section of the average wage-earning families in America shows that the cost of rearing a child to the age of self-support including food, shelter, clothing, education and so on is $7,238. If we include the interest on the capital, and if we make allowance for the children who do not survive the age of eighteen, the amount is increased to more than $10,000. This does not include the money value of the mother's care, although we recognize that the working mother makes a real financial contribution to the family's maintenance. Child-rearing is an industry in which capital is invested by parents and the State, which capital is destined to produce future returns not to the family so much as to the State itself. Therefore, child-rearing has come to be the State's chief concern. Normal, healthy adults not only produce a market for the State and Nation's products, but in addition they produce vastly more than they consume and in their production add to the taxable values in the way of real property, tangible and intangible in the communities where they live. It has been computed that the value of the future earnings of a normal individual at the age of eighteen on through life is well in excess of $41,000 and the expenditures essential to the necessities of existence for that individual are less than $13,000. So that the economic worth to the community of a well adjusted human machine at the age of eighteen is well in excess of $29,000. This applies to the wage earner whose income is estimated to be $2,500 a year. The maximum value of this particular human machine in this particular wage-earning class is reached at about the age of twenty-five and is in excess of $3,200. His earnings decline as the years advance, until at the age of seventy they cease. A child born in this class of society is worth to the State $9,333. It costs money to raise this child to the age of self-support, but when the child begins to work, it produces more than it consumes. The sixty million productive males in the United States have a future net earning capacity of more than a trillion dollars. Now there are more than 8,500,000 gainfully occupied women in the United States, which, when added, makes the additional sum of five hundred billion dollars, so that the total human assets, if audited and valued from a standpoint of future earning capacity, will bring the tremendous and staggering sum of one trillion, five hundred billion dollars. In 1922 our national wealth in material assets was three hundred twenty-one billions of dollars. So, if our calculations are correct, our human capital exceeds our inanimate wealth by about five to one.

Having obtained an idea of the actual value to the United States of its human machines, let's see what we are losing because of sickness. According to Frankel and Dublin the average individual spends one-fortieth of his time in bed because of incapacitating illness. The average worker loses 2 per cent of his time, a fraction more than seven days a year, because of incapacitating illness. One-fortieth of the population is constantly ill to the extent of being bedridden. Extensive and reliable studies indicate that where one is incapacitated, there are at least two physically impaired to the extent of from 10 to 50 percent of their efficiency, which is to say that for every thousand people, there are fifty who suffer from prevalent and chronic diseases, which completely incapacitate them for a small part of their duration. For example, tuberculosis, cancer, heart disease, vascular disease, chronic indigestion, gallstones, kidney stones, hernias, unrepaired injuries following child birth, and so on. The annual expense to the people of the United States for medical service, if itemized and totaled, would read about as follows:

150,000	physicians, @ $3,000 per annum	$ 450,000,000
140,000	private duty nurses, @ $1,500 per annum	210,000,000
150,000	practical nurses, @ $1,000 per annum	150,000,000
100,000	attendants, @ $1,000 per annum	100,000,000
50,000	dentists, @ $3,000 per annum	150,000,000
7,000	hospitals, with a total of 860,000 beds	750,000,000
	Druggists for medicines	700,000,000
25,000	healers, chiropractors, osteopaths, christian scientists, etc., @ $2,000 per annum	50,000,000
	Grand total	$2,560,000,000

The people of the United States, it will be noted, are paying for the treatment of disease not less than $2,500,000,000 a year, or ($2,500,000,000÷120,000,000 population) $20.83 per capita, or approximately $100 per family. The average wage-earner's family, according to studies conducted by the U. S. Bureau of Labor statistics, pays $60.39 a year for medical services. The average farmer's family, according to studies conducted by the U. S. Department of Agriculture, pays $61.60 a year for medical services. The average family represented in the clerical personnel employed by a large insurance company pays $80.00 a year for medical services. In addition to the expense for medical services imposed by disease, there is an estimated annual loss to the people of the United States of $2,000,000,000, as a result of decreased wage-earning capacity. And there is a still further loss of permanently interrupted wage-earning capacity through postponable deaths, estimated to be $6,000,000,000, making a total annual cost of disease to the people of this country $2,500,000,000 for medical services, plus $2,000,000,000 loss in wage-earning capacity, plus $6,000,000,000 death losses—a total of $10,000,000,000 a year. The total annual income of the United States is about $90,000,000,000. Any service which costs as much as medical care and which is so absolutely essential to both individual and national prosperity and happiness, raises at once the question of the ability of the people to pay for it. The income of the people of the United States, according to Leo Wolman, quoted in *The Survey* for June 15, 1927, was as follows:

6%	of families, annual income in excess of	$2,900
90%	of families, annual income under	2,000
67%	of families, annual income under	1,450

As staggering as these figures are, they do not cover the total cost, to-wit, the sickness causing premature death, the sickness removing individuals in their prime when they have tremendous productive value. Now let us come to the economic value of preventive medicine and public health. Practically one-third of the deaths that occur every year are preventable. The great bulk of preventable deaths are in infancy and childhood. More than 120,000 babies died from preventable diseases last year. There is no reason for this except the indifference of individuals who control the community in which these children live. Mothers will save their babies if given a chance. Would that the physicians of the country could make the legislatures in their own particular communities understand that babies have a dollar-and-cents value of more than $9,000 if they are boys and $4,000 if they are girls, and that capital lost throughout the country from infant deaths alone, which could be prevented, is more than seven hundred and fifty million dollars. Every year more than 30,000 young men and women between twenty-five and twenty-nine years of age die from entirely preventable causes and their capital value, having in mind their net future earnings, is more than seven hundred and fifty million dollars. Having due regard for the value of human life at each age period, it has [illegible] mated that the total capital value of lives which can be saved [illegible]able through the application of preventive medicine and public health [illegible] United States is well over ten billions of dollars. New let's bring [illegible] problem home. Every year in North Carolina there are in round numbers 6,500 deaths of infants under one year of age—half of them are males, half females. In the death of the males we lost last year 3,250 times $9,333; in the death of the females 3,250 times $4,666, which in the aggregate is a loss to the State of $45,496,750 caused by the death of infants under one year of age last year. We find in North Carolina the number of deaths of males at the age of eighteen is 125, and the average number of deaths of females at the age of eighteen is 125. A male at the age of eighteen has a future earning capacity of $30,000; a female a future earning capacity of $15,000. One hundred and twenty-five times $30,000 is $3,750,000; a hundred and twenty-five times $15,000 is $1,875,000—which gives us a total of $5,625,000, combined net future earnings. The average number of males dying in North Carolina at the age of 25 is 250; females dying at the age of 25 also 250. Multiply 250 by 32,000 and we have $8,000,000. Then multiply 250 by 16,000 and we have $4,000,000. This totals $12,000,00. Now add the loss from deaths of one year of age $45,496,750, the loss from deaths of 18 years of age $5,625,000, and the loss from deaths of 25 years of age $12,000,000, and we have $63,121,750. One-third of these deaths are preventable. The State actually lost last year by death in only these three age groups $21,040,583 plus. The average family spends yearly $80 on sickness. We have aproximately 600,000 families in North Carolina. This multiplied by $80 amounts to $48,000,000. Two per cent of our population is sick all the time, which means that 60,000 people in North Carolina are sick 365 days in a year. To care for this sickness it takes in North Carolina two thousand physicians at an average of $3,500; 700 dentists at an average of $3,500 a year; 1,000 nurses at an average of $1,500 a year; 600 nurses doing private duty; 5,000 midwives; 800 orderlies; stenographers; assistants in hospitals and offices of private physicians; druggists; drugs and sick room supplies; patent medicines; osteopaths; chiropractors; christian scientists; faith healers; neuropaths and so on, and so on. And to this we will add the loss of time of the sick people and their families and we can easily see that sickness costs this State more than $50,000,000 a year.

Lastly, we come to the salvage to society through the practice of preventive medicine and the promulgation of public health. We have conquered epidemics of serious import with the exception of influenza. In 1875 the death rate was 28.3 per thousand; in 1925 it was 11.5; and in 1880 the average life span was about 40 years; it is now nearer 56 years. In 1901 a baby born in the United States registration area might expect to live 49.24 years: this expectation of life has been extended to 57.74 years. The diseases which have been most reduced are those which affect infants and young children. Infant mortality has been cut 60 per cent in the past twenty years. In the past, nearly 25 per cent of the babies did not survive the first year, only about 7 per cent die today, and two-thirds of this 7 percent will be prevented in the near future. In [illegible] the death rate from typhoid fever was thirty-six per 100,000 [illegible] tration area. This disease is now not far from extinction. [illegible] is on the point of being wiped out. In 1900 it had a death [illegible] 43.3 per 100,000. In 1926 this death rate was reduced to 7.5. The most striking demonstration of the effectiveness of public health work is the experience of the Metropolitan Life Insurance Company: 17 years ago, it instituted a program of health education and nursing service for its working class policy holders. It has expended over $20,000,000 in this line of work, and in 17 years it has decreased its mortality rate more than 30 per cent. The accumulative saving to this one company in mortality between 1911 and 1925 has totaled the amazing sum of $43,000,000. During this period of their demonstration the death rate from tuberculosis among the industrial policy holders has been reduced to 56 per cent; the typhoid fever reduction is 80 per cent; the communicable disease of childhood reduction is 55.5 per cent; the reduction from diphtheria alone being 62 per cent. In every important condition the death rate has declined among the industrial policy holders twice as fast as it has declined in the general population. The expectation of life has among these industrial policy holders increased by nine years, since 1911. Whereas the corresponding increase in the general population has been about five years. Health work when properly undertaken and adequately financed pays by every test of this business organization. The efforts of preventive medicine directed to the prevention of typhoid fever in North Carolina has saved the State $215,000,000 since 1914. In 1914 North Carolina had 3,260 deaths from tuberculosis; in 1928 it had 2,244 deaths from tuberculosis. If the same death rate from tuberculosis in 1914 had continued through 1928 we would have had 14,224 deaths from tuberculosis which we did not have, which means a saving in the net earnings of males and females at the age of 18 of $309,401,000.

North Carolina is spending today less than forty cents per capita in preventive medicine and more than $15.00 per capita on cost of sickness alone, one-third of which sickness is preventable. In 1920 there were 603,683 males twenty-one years and over in this State; 607,044 females twenty-one years and over. According to the estimates above mentioned we would have $20.00 earning capacity apiece for the males and $10.00 earning capacity apiece for the females; and according to this, the total worth of man power in North Carolina ten year ago, our last census was taken, would reach the gigantic figure of $18,144,300,000; while the material wealth in 1920 was only $4,543,-

110,000. The achievements in the field of public health have completely changed the surroundings of the average citizen in the United States. They no longer live in dread of plague, cholera, yellow fever, virulent smallpox, typhoid fever and a host of other horrors. Did time permit, we could with profit look back into the days when plague, pestilence and famine were rife in the world. We have but to go back to 1914 as far as North Carolina is concerned, when the population of the State was less than 2,000,000, and find where we had 839 deaths from typhoid fever, the disease giving a death rate of 35.8, while in 1928 we had 185 deaths with a death rate of only 6.3. If the rate of 1914 had continued up to 1928 inclusive we would have had 10,000 deaths from typhoid fever which we did not have. Figuring these deaths at net future earnings of $29,000 for males and $14,500 for females, we would produce the enormous sum of $214,368,000 saved the State from one piece of work alone, namely, the prevention of typhoid. Take tuberculosis: North Carolina had in 1914, 3,260 deaths from this disease. In 1928 we had 2,240 deaths from tuberculosis—the saving of 1,016 people and their potential earnings last year. If the same rate had continued during the 14 years from 1914 to 1928, we would have had 14,224 deaths that we did not have—a saving to the State in the net future earnings of males and females of $309,401,000. The elimination of accidents would add more than a year to the average expectation of life. A goodly proportion from heart disease are preventable, which prevention would add appreciably to the span of life. The same may be said of arteriosclerosis, and cancer.

If we were but willing to utilize and if we would but finance ways and means to put preventive medicine into actual practice, we could easily raise the expectation of life from 58 to 65 years. We are confronted with a real situation. We know how great is the value of human life. We know the surrent losses from sickness and death. We have the knowledge and resources necessary for the control of disease. Obviously, if we are governed by knowledge we will immediately undertake to more consistently and meticulously avail ourselves of the advantages of disease prevention. Today public health work is really in its infancy, the public is coming to see and know that less than fifty cents per capita represent the total expenditure for public health, while more than fifteen dollars per capita represents the money spent for medical service, which money is directed to the alleviation of disease and not to its prevention. The prevention of disease is a purchasable thing. Money invested in the business will bring untold dividends. Not only in dollars, but in happiness and in the joy of living.

BUREAU OF COUNTY HEALTH WORK

Rural county health work in the United States, in the sense that the term is now used, had a rather belated beginning. There are some conflicting claims as to the date and location of the first full-time county health department. Jefferson County, Ky., claims to have initiated this service in 1908. This view, however, rests upon very vague and unconvincing evidence, which in some respects tends to disprove rather than support the claim. Although the need for full-time county health departments was stressed many times prior to 1911, the only tenable conclusion was that can be drawn from the records thus far presented is that the first definite efforts of an official nature that were made in the direction of establishing a full-time county health department took place in that year. North Carolina enjoys, we believe, the distinction of having established the first full-time county health department on July 1st, 1911. During the same year, under the inspiration of Surgeon L. L. Lumsden, U. S. Public Health Service, the health officer of Yakima County, Washington, was appointed full-time medical director.

Other independent organizations followed these early beginnings. Progress was, however, very uncertain up to 1917, when state financial coöperation was introduced in North Carolina. From the beginning of this coöperative arrangement, it became apparent that a vitalizing principle had been discovered. The first financial coöperation was formed on a three year basis in which the county, during the first year, assumed 50% of the entire expenditure and the State Board of Health and International Health Board each supplied 25%. This financial assistance was on a descending scale and during the second year, the rates were 60%, 20% and 20% respectively; and during the third year—75%, 12½% and 12½% respectively. At the close of the three-year period it was contemplated that financial coöperation from agencies other than those of the county would cease.

Before the end of the contemplated three-year period it became evident that the principle of financial coöperation and assistance was a policy of the State Board of Health to be continued indefinitely. With reference to the influence of this financial coöperation, it seems certain that the present development in county health departments would have been delayed for many years without the aid of financial coöperation from sources other than the county. Before the event of financial coöperation, there was a lack of system and uniformity and misdirected effort on the part of county health officials.

While the investment of state funds in local health work entitles the state to a voice in the management of the local project, this right is exercised in North Carolina with caution and in an advisory capacity only. Coöperation rendered by the state does not mean domination. The zeal for local self-government, though perhaps sleeping, is not dead. To do violence to this principle will call forth a righteous indignation that may well be dangerous or even disasterous. In the second place, if the State Board of Health assumes power or authority it is accepting an equal measure of responsibility which may prove at times to be most embarrassing. Although the State Board of Health offers a county help

TABLE I

Full Time County Health Work in Operation, December 31, 1929

Name of County	DIRECTOR		Date Operations Began	NUMBER IN PERSONNEL									ANNUAL APPROPRIATIONS						
				Full Time					Part Time					Appropriated by Co-operating Agencies					
	Name	Professional Degree		Medical Officers	Non-Medical Officers	Inspectors	Nurses	Clerks	Medical Officers	Non-Medical Officers	Inspectors	Others	Total Budget	County	State	U. S. P. H. S.	Red Cross	Towns	Other Agencies
Beaufort	R. E. Windley	M. D.	1-1-23	1			1	1					7,937.11	3,800.00	3,750.00				387.11
Bertie	J. E. Smith	M. D	7-1-21	1									5,000.00	2,500.00	2,500.00				
Bladen	R. S. Cromartie	M. D.	7-1-21	1			1						6,826.83	3,050.00	2,500.00				1,276.83
Buncombe	R. E. Fox	M. D.	9-1-20	1		1	2	1	1				22,587.50	17,025.00	3,750.00				1,812.50
Cabarrus	D. E. Caldwell	M. D.	9-15-19	1			2	1					11,135.03	4,500.00	3,750.00			1,000.00	1,885.03
*Carteret			9-1-22																
Cherokee	W. C. Morrow	M. D.	7-1-29	1			1	1					7,500.00	3,750.00	3,750.10				
Columbus	Floyd Johnson	M. D.	4-1-21	1				1					5,430.95	2,500.00	2,500.00				430.95
Craven	D. E. Ford	M. D.	1-15-21	1		1	1	1		1			11,000.00	7,250.00	3,750.00				
Cumberland	L. L. Williams	M. D.	7-1-19	1		1	2	1					10,787.50	3,125.00	3,750.00	600.00		3,125.00	187.50
Davidson	G. C. Gambrell	M. D.	7-1-17	1			1	1					10,171.27	5,872.05	3,750.00				549.22
Durham	J. H. Epperson	M. S.	4-1-13	1	3	4	10	1	1		1		54,506.00	25,378.00	3,750.00			25,378.00	
Edgecombe	R. E. Broadway	M. D.	4-1-19	1		1	2	1					10,347.84	4,120.00	3,750.00	650.00			1,827.84
Forsythe	J. R. Hege	M. D.	1-1-18	2		1	8	1					37,243.73	32,242.00	3,750.00				251.73
Gaston	R. E. Rhyne	M. D.	3-1-28	1			2	1					12,931.42	8,890.00	3,750.00				291.42
Guilford	R. M. Buie	M. D.	6-1-11	1	2	1	2	1					19,357.06	14,000.00	3,750.00				1,607.06
Granville	J. A. Morris	M. D.	9-1-19	1			1	1					8,952.87	3,900.00	3,750.00				1,302.87
Halifax	Z. P. Mitchell	M. D.	9-1-19	1		1	2	1					13,812.82	8,050.00	3,750.00			900.00	1,112.82
Henderson	J. H. Woodcock	M. D.	5-21-23	1				1					6,219.83	3,660.00	2,500.00				59.83
Johnston	C. C. Massey	M. D.	2-1-25	1				1					5,193.07	2,500.00	2,500.00				193.07
Lenoir	R. S. McGeachy	M. D.	8-1-17	1		1	2	1					12,752.71	6,750.00	3,750.00			2,100.00	152.51

Mecklenburg	W. A. McPhaul	M. D.	1-1-22	1		1	4	1	5				22,188.68	16,800.00	3,750.00			625.00	1,013.68
Moore	J. Symington	M. D.	2-1-28	1			2	1					7,882.33	3,750.00	3,750.00				382.33
Nash†	G. F. Reeves	M. D	3-4-15	1			1	1					7,500.00	3,750.00	3,750.00				
New Hanover	J. H. Hamilton	M. D.	4-1-13	2	2	5	8	2		2		40	52,860.00	12,217.50	3,750.00		1,320 00	28,652.50	6,920.00
Northampton	M. H. Seawell	M. D.	8-1-17	1			1						7,332.41	2,600.00	2,500.00				2,232.41
Pitt	Clem Ham	M. D.	12-1-17	1			2	1					11,791.67	7,900.00	3,541.67				350.00
Randolph	G. H. Sumner	M. D.	8-1-27	1				1					5,611.03	2,500.00	2,500.00				611.03
Richmond	A. B. McCreary	M. D.	11-1-24	1			1	1					9,093.17	3,750.00	3,750.00	300.00			1,293.17
Robeson	E. R. Hardin	M. D.	4-1-12	1			1	1					11,137.47	5,750.00	3,750.00	300.00			1,337.47
Rowan	C. W. Armstrong	M. D.	1-1-18	1		2	2	1					17,617 21	7,208.50	3,750.00			6,600.00	58.71
Rutherford	J. C. Twitty	M. D.	7-1-24	1				1					6,694.17	3,000.00	2,500.00				1,194.17
Sampson	J. D. Kerr	M. D.	10-1-13	1			1	1					6,317.40	3,140.00	3,140.00				37.40
Surry	M. T. Foster	M. D.	9-1-19	1			1	1					8,118.66	3,750.00	3,750.00				618.66
Vance	F. R. Harris	M. D.	4-15-20	1			1	1					6,612.74	1,900.00	2,500.00			900.00	1,312.74
Wake	A. C. Bulla	M. D.	9-1-18	1	1	5	5	1					34,925.71	12,500.00	3,750.00			12,500.00	6,175.71
Wayne	L. W. Corbett	M. D.	9-1-20	1		2	2	1					18,456.35	14,586.00	3,750.00				120.35
Wilkes	J. W. White	M. D.	10-1-20	1			1	1					6,933.13	2,500.00	2,500.00				1,933.13
Wilson	L. J. Smith	M. D.	9-1-16	1		1	1	1					12,027.39	4,762.50	3,750.00			3,192.50	322.39
Brunswick	Irene Parsons	R. N.	1-1-24				1						2,784.87	1,200.00	1,200.00				384.87
Pamlico	Josephine Sykes	R. N.	1-1-23				1	1					3,600.00	1,800.00	1,800.00				
Person	Ruth McCollum	R. N.	6-1-29				2	1					5,068.84	2,500.00	2,500.00				68.84
Union	Mrs. Carrie B. Godrey	R. N.	8-1-29				1						2,400.00	1,200.00	1,200.00				
Warren	Mrs. Jas. S. Jones	R. N.	9-1-23				1						2,100.00	1,050.00	1,050.00				

*Discontinued 3-1-23. Resumed 1-1-26. Discontinued 2-1-27.

†Discontinued 10-1-19. Resumed 7-1-26.

and not dictation, it does not hold itself aloof from the management of local affairs. On the contrary, experience has shown the wisdom, under the coöperative system, of delegating the selection of health officials and the formulation of the program of work to the State Board of Health. In so doing, the State Board of Health acts only as the county's agent, and performs such functions as privileges and not as obligations. Thus, in this manner, directional influence is accomplished, but the authority and burden of responsibility is placed upon the local community.

During the period July 1, 1928, to June 30, 1930, the State Board of Health coöperated with forty-three full-time county health departments, thirty-eight of whom were under the direct supervision of a medical director and five conducting public health nursing service only. The preceding table gives a list of the organized county health departments in the state together with the date of organization, the personnel employed, the total annual budget and the amounts appropriated by coöperating agencies. (See Table No. 1, p. 36.)

The following table shows the combined work accomplished in the forty-three counties for the period July 1, 1928, to December 31, 1929, together with the cost equivalent earned:

I. COMMUNICABLE DISEASE CONTROL

1. CONTAGIOUS DISEASES:

QUARANTINE BY MAIL

Measles	104
Pertussis	1,375
Scarlet Fever	556
Diphtheria	1,347
Smallpox	73
Chickenpox	644
Typhoid	143
Paratyphoid	1
Septic Sore Throat	32
Poliomyelitis	9
Cerebro-spinal Meningitis	9
Rubella	53
Pellagra	105
Total Number	4,451
Cost Equivalent	$2,225.50

QUARANTINE BY VISITS

Measles	973
Pertussis	6,956
Scarlet Fever	2,204
Diphtheria	3,014
Smallpox	367
Chickenpox	3,286
Typhoid	734
Paratyphoid	I
Septic Sore Throat	61
Poliomyelitis	39
Rubella	544
Cerebro-spinal Meningitis	39
B. Dysentery	144
Typhus Fever	2
Pellagra	30
Diphtheria Carriers	8
Return visits	8,804
Total visits	42
Total Number	27,248
Cost Equivalent	$40,872.00

	Number	Cost Equivalent
Visit to and instruction of schools	8,055	$ 16,110.00
Instruction of schools through teachers	6,754	6,754.00
Epidemiological investigation	30,574	45,861.00
Vaccination, smallpox	82,156	20,539.00
Vaccination, typhoid, complete	171,262	85,631.00
Vaccination, diphtheria, complete	84,461	63,345.75
Vaccination, pertussis, complete	3,725	1,862.50
Schick Test	27,633	13,816.50
Dick Test	2,526	1,263.00
Tubercular Test	7	3.50
2. Veneral Disease Control:		
Cases reported	6,152	1,538.00
Treatments, indigent cases	49,139	122,847.50
3. Tuberculosis Control:		
Cases registered	1,183	295.75
Tuberculous homes visited and instructed	9,028	9,028.00
Organization, clinic, number examined	3,448	3,448.00
Examination, tuberculosis	3,741	3,741.00
Admission to tuberculosis institution	559	2,795.00

II. HYGIENE

	Number	Cost Equivalent
1. Infant and Maternal Hygiene:		
Prenatal cases registered	8,802	$ 2,200.50
Babies registered	24,091	6,022.75
Home conferences, mothers	70,220	70,220.00
Individual or group conferences, mothers; number present	39,968	9,992.00
Women completing standard course	268	804.00
Midwives completing 6-hour course	1,867	7,468.00
2. School Hygiene:		
Tonsil and adenoid operations	7,601	38,005.00
Children treated, dental defects	47,593	95,186.00
Refractive errors corrected	2,031	2,031.00
Orthopedic corrections	796	3,980.00
Nutritional correction	4,141	4,141.00
Pages, Modern Health Crusade	3,095	773.75
Examinations, school children, including pre-school ages 2 to 6:		
Primary	181,426	45,356.50
Final	70,132	35,066.00
Excluded from school, account of scabies	5,277	1,319.25
Excluded from school, account pediculosis	1,760	440.00

III. MEDICAL AND LABORATORY SERVICES

MEDICAL

	Number	Cost Equivalent
1. VISITS:		
Jail	8,071	$ 12,106.50
Convict Camp	4,813	7,219.50
County home	7,640	11,460.00
County tuberculosis hospital	1,659	2,488.50
Hookworm treatment	985	246.25
Anti-rabic treatment, complete	238	2,380.00
2. EXAMINATIONS, Special:		
Prisoners	16,585	16,585.00
Marriage	6,202	6,202.00
Teachers	9,083	9,083.00
Child for industry	5,257	2,628.50
Food handlers	7,017	7,017.00
Examination by court order	806	1,612.00
Admission to institution	1,465	2,197.50
For lunacy	1,386	2,772.00
Life extension	13,846	27,692.00
Post mortem	176	880.00
LABORATORY WORK		
Specimens sent to State Laboratory	23,519	11,759.50
Throat culture and examination for diphtheria bacillus	8,094	12,141.00
Feces examination for parasites	570	285.00
Sputum examination for tuberculosis	303	303.00
Blood for malaria	1,815	1,815.00
Pus for gonococci	814	814.00
Complete urine analysis including microscopic examination	8,570	8,570.00
Albumen test, prenatal cases	2,029	1,014.50
Milk analysis	9,636	19,272.00
Babcock test alone	1,359	679.50
Water analysis (public supply)	7,992	7,992.00

IV. SANITATION

1. EXCRETA DISPOSAL:		
Urban privies constructed or repaired	18,775	$ 9,387.50
Sewer connections	3,812	9,530.00
Rural privies constructed or repaired	8,590	42,950.00
2. PRIVATE WATER SUPPLIES:		
Protected against surface pollution	597	2,985.00
3. ABATEMENT OF NUISANCES:		
Minor	49,873	24,936.50
Major, hours spent	13,329	13,329.00

V. FOOD CONTROL

	Number	Cost Equivalent
1. INSPECTIONS:		
Dairy	10,345	$ 10,345.00
Abattoir	2,627	2,627.00
Hotel, restaurant, market	61,597	30,798.50
2. EXAMINATIONS AND TESTS OF ANIMALS:		
Ante mortem (when temperatures are taken)	1,742	435.50
Post mortem, viscera attached	87,374	21,843.50
Cows tuberculin tested by veterinarian employed by health department	7,346	11,019.00

VI. MISCELLANEOUS

1. CONFERENCES, Health Officer:		
Office conference by health officer	47,556	$ 23,778.00
Official group (including meeting of Board of Health and County Commissioners)	2,986	4,479.00
2. CONVICTIONS, Violation of health laws	685	3,425.00

VII. TRANSPORTATION

1. MILEAGE (Official Business):		
Car miles	1,692,661	$ 169,266.10
Health officer-miles	637,149	31,857.45
Nurse-miles	748,632	22,458.96
Sanitary inspector-miles	356,961	10,708.83
Totals		$1,388,357.84

On January 1st, 1930, the State Board of Health adopted a plan of the American Public Health Association for reporting activities of rural health departments. The following tabular summary gives the accomplishments of the forty-three full-time departments for the period January 1, 1930, to June 30, 1930.

Communicable Disease Control

Item 1. REPORTABLE DISEASES:

	Cases Reported	Return Visits
Cerebro-spinal Meningitis	47	56
Chancroid	45	1
Diphtheria	393	333
Gonorrhea	584	17
Measles	647	84
Poliomyelitis	19	15
Scarlet Fever	526	388
Smallpox	277	79
Syphilis	1,494	12
Tuberculosis	425	139
Typhoid Fever	149	119
Whooping Cough	4,799	1,039
Others	4,753	806

Item 2. CONTROL PRACTICES:

	Number
Diptheria released without culture	103
Diphtheria released on one negative culture	55
Diptheria released on two negative cultures	151
Typhoid released on negative culture	2
Laboratory examinations for typhoid carrier	32
Laboratory examinations for typhoid carrier in milk and food handlers	247
Smallpox contacts vaccinated	3,515
Child contacts to Scarlet Fever quarantined 7 days	429
Medical or nursing service to Ophthalmia Neonatorum	172
Diagnostic consultations to communicable diseases	1,609

Item 3. HOSPITALIZATION:

	Number
Typhoid	50
Diphtheria	8
Scarlet Fever	17
Smallpox	11

Item 4. IMMUNIZATIONS:

	Number
Completed toxin-antitoxin, pre-school children	6,699
Completed toxin-antitoxin, school children	15,259
Completed anti-typhoid inoculations	52,206
Smallpox vaccinations, first grade school children	16,198
Smallpox vaccinations, other than first grade school children	36,179

Item 5. VENERAL DISEASE CONTROL:

	New Cases at Clinic	Total Cases at Clinic	Number Treatments Given	Discontinued Cases Returned
Syphilis	2,252	8,977	18,033	678
Gonorrhea	875	1,143	1,218	244
Chancroid	69	37	80	0

Item 6. TUBERCULOSIS CONTROL:

	Number
Nurses visits to cases or contacts	3,882
Nurses visits to post sanatoria cases	689
Visits to physicians or clinics for diagnosis or treatment	10,395
New cases registered with physicians or clinics for diagnosis or treatment	7,240
New Cases hospitalized: Incipient	99
Advanced	176
Under 15 years of age	359
Patient days in hospital	42,784
Children completing 6 weeks: Open air class room	3,122
Preventoria	19

HEALTH OF THE CHILD

Item 7. PRENATAL:

	Number
New prenatal cases visited by nurse	2,421
Nurses visits to prenatal cases	3,326
Prenatal visits to physicians	1,187
Cases delivered in hospital	343
Midwives instructed and registered	1,275

Item 8 INFANT:

	Number
Nurse visits to infants under one year	12,926
Visits to infants under 1 year to physicians	2,279
Visits infants under 1 year to nurses conference	900

Item 9. PRE-SCHOOL CHILD:

	Number
Nurses visits to children ages 1-5 years	9,668
Visits children ages 1-5 years to medical conference	11,763
Visits children ages 1-5 years to nurses conference	3,983

Item 10. SCHOOL CHILD:

	Number
Number school children same grade weighed: First	17,051
Second	11,853
Number schools notification of weight sent to parents: First	7,176
Second	1,949
Number underweights weighed: Every 2 weeks	7,000
Every 4 weeks	18,615
School children examined by physician	46,494
Hours spent in examination by physician	5,134
Number schools in which physician examined children	1,183
Number parents present at time of examination	5,397
School children, vision, hearing and measurements made by teacher or nurse	73,084
School children inspected by physician or nurse	87,569
School children having teeth filled	18,867
School children having teeth extracted	16,694
School children having teeth cleaned	23,041
School children having glasses fitted	687
School children having tonsil and adenoid operations	2,469
School children having orthopedic defects corrected	176
School children with heart or lung defects placed under physician	972
Nurses visits in behalf of grade school children	14,839
School children visiting nurses conference	3,663
Number parents present at nurses conference	1,605
School buildings inspected once per year	908

SANITATION

Item 11.

	Number
Sanitary inspections and reinspections	106,956
Food handlers examined	3,250
Dairy cows tuberculin tested	8,804
Dairy farms inspected	4,022
Rural water supplies improved	191
Rural privies built or improved	6,471
Urban privies built or improved	7,005
Sewer connections	1,420

LABORATORY

Item 12.

	Number
Examination for diphtheria	1,230
Examination for typhoid	305
Examination for tuberculosis	521
Examination for syphilis	6,688
Examination for gonorrhea	418
Examination of milk samples	4,551
Examination of water samples: Public supplies	2,934
Rural-semi-public	950
Examination, others	3,823

POPULAR HEALTH INSTRUCTION

Item 13.

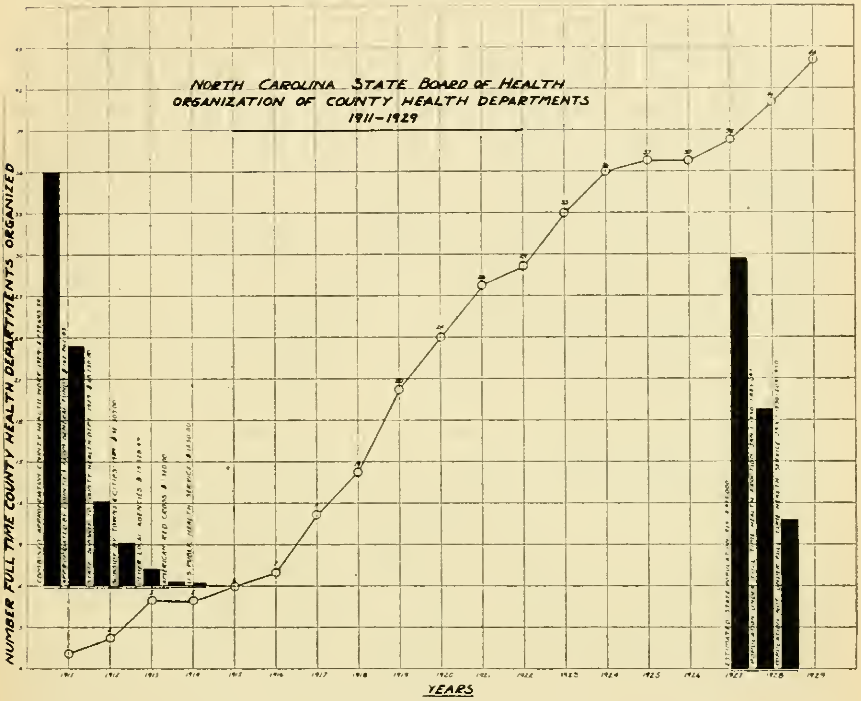
	Number
Number health pamphlets, placards, etc., distributed	123,214
Articles on Health published in newspapers	1,189
Lectures or talks on Health	3,874
Showing of motion pictures on Health	3,301
Special demonstrations to promote Health work	1,055

COUNTY PHYSICIAN REPORT

	Number
Examination, prisoners	7,498
Examination for marriage	1,513
Examination, teachers	245
Examination, child for industry	1,238
Examination by court order	292
Examination for admission to institution	657
Examination for lunacy	531
Examination, post mortem	153
Visits to jail	2,657
Visits to convict camp	1,465
Visits to county home	2,241
Visits to County T. B. Hospital	766
Completed anti-rabic treatments	93
Treatment, hookworm	381

Since the organization of the first full-time county health department in Guilford County, North Carolina, there has been a steady growth in development until the end of 1929 when it was found that 1,883,047 of the State's 2,975,000 population was under full-time health protection, which gives a percentage of 63.3%.

The accompanying graph illustrates the development of the county health units in the State.



THE BUREAU OF SANITARY ENGINEERING AND INSPECTION

The activities of this bureau embrace all of the non-medical activities of the State Board of Health. The community or area, usually the municipality, rather than the individual is the object of attention. The work of the Bureau is directed toward the improvement of the sanitary environment, for the prevention of spread of contagious diseases and the elimination of conditions that indirectly exercise a deleterious influence upon the health of the people. The measures employed in the conduct of these activities involve practical sanitation, engineering, chemistry and biology directed along the lines of—(a) Practical application of recognized principles of sanitation and public health engineering in the establishment of safeguard to the health of the community and the State, and (b) Scientific investigations to furnish information upon which to base and execute sound, safe and progressive policies consistent with wise public economy.

This biennium marks the completion of a decade of activity of this bureau, which was created by the General Assembly of 1919, under the present directorship, and an attempt will be made to present in this report a brief review of the development and accomplishments of the division for the ten-year period. Starting in the spring of 1919 with one man, engaged in the execution of a single project, the Bureau has experienced a healthy growth until this year the total personnel in its service numbered thirty-two, engaged in twenty-two distinct activities. Although this expansion may appear rapid, it has not been sporadic. No activity has been assumed for the sake of mere expansion or without careful consideration of its public health significance and the ability of the organization successfully to carry it into execution. New enterprises have been undertaken one at a time and each well established before a new one was launched. It has been the policy of the bureau in instituting new activities to select specially trained personnel for the particular project and concentrate every effort upon it until it was a "going concern," and then, by training the other members of the organization in that line of work, consolidate the new work as far as possible with the other duties of the general personnel. This plan offers the advantages that—(a) the department is not entirely dependent upon one individual to handle one particular phase of work, as it would be with a corps of specialists, (b) the service rendered is much greater and more prompt, (c) travel expense is reduced to a minimum, and (d) the personnel of the bureau is given much broader training, experience and perspective, which deepens their appreciation of public health problems, affords more professional development and increases their usefulness.

The policy of the bureau has been progressive and far sighted, its measures preventive rather than remedial. There has been an appreciation of the problems of sanitation before these problems became acute, and preventive measures applied in time have forestalled the development of conditions that would be extremely difficult, if not impossible, to remedy. An example of this foresight is afforded in the stream sanitation program. With the rapidly increasing population and industrial development of the State it was foreseen that without a full understanding of the situation and adequate control measures the pollution of North Carolina streams would attain such proportions that extremely foul and dangerous conditions would prevail, with no hope of applying economically practicable remedial measures that would return these streams even approximately to their former natural condition. So, several years ago, before the problem became acute, an intensive program of stream sanitation was begun, and later continued in coöperation with the Department of Conservation and Development, involving complete hydrological, physical, chemical and biological studies of the various river systems, investigations of the quantities and characteristics of all the sewage and industrial wastes entering the streams, determination of suitable methods of treatment for such wastes and the application of these findings in the enforcement of a program of wastes treatment that will insure the maintenance of safe and decent stream conditions. Thus North Carolina has been able to avoid the deplorable situation that exists in most of the densely populated and highly industrialized states by applying the effective ounce of prevention rather than relying upon the uncertain pound of cure.

The foregoing example is representative of the policy governing all the enterprises of the bureau. Moreover, in the development of the organization every effort has been made to assume new activities in the order of their public health importance, and to coördinate them with existing activities in such a way that they would be of mutual assistance, capable of exercise by the general personnel of the division with a consequent economy of administration.

During the first years of the bureau's work, attention was centered principally upon educational measures for the promotion of community interest in essential sanitary improvements, such as excreta disposal, water supply, sewerage and milk sanitation, upon the enforcement of State laws and regulations relating to these matters, and the application of accepted principles and standards. With these fundamental enterprises well established and functioning smoothly on a routine basis, and with the rapid muncipal and industrial development of the State, much attention has been directed in the later years to extensive and highly specialized scientific investigations in the sanitary chemistry and biology of water purification, sewage and industrial wastes treatment and stream pollution to afford basic information on which to found policies and direct activities in dealing with the present and future problems of sanitation in a rapidly growing commonwealth.

ACTIVITIES OF BUREAU

The various functions of the bureau are administered through the following three divisions, comprising twenty-two distinct activities, manned by specially trained personnel. Included in parentheses after each activity is the date of institution of active field work.

I—Sanitary Inspection Division

1. Enforcement of State Sanitary Privy Law (1919)
2. School sanitation (1919)
3. State institution sanitation (1921)
4. Hotel and restaurant sanitation (1921)
5. Jail and convict camp regulation (1925)
6. Bedding sanitation (1929)
7. Summer and tourist camp sanitation (1928)
8. Barber shop sanitation (1929)
9. Roadside sanitation (1930)

II—Sanitary Engineering Division

1. Public water supply control (1921)
2. Certification of interstate carrier water supplies to U. S. Public Health Service (1921)
3. Public sewage disposal control (1921)
4. School water supply and sewage engineering service (1925)
5. Stream pollution surveys (1926)
6. Industrial wastes investigations (1926)
7. Central sewage and industrial wastes laboratory service (1926)
8. State institution water supply and sewerage engineering service (1927)
9. Mineral water analyses for N. C. Dept. Conservation and Development (1928)
10. Chemical and bacteriological examination of public water supplies (April 1,—July 1, 1929)
11. Mosquito and malaria control (1929)

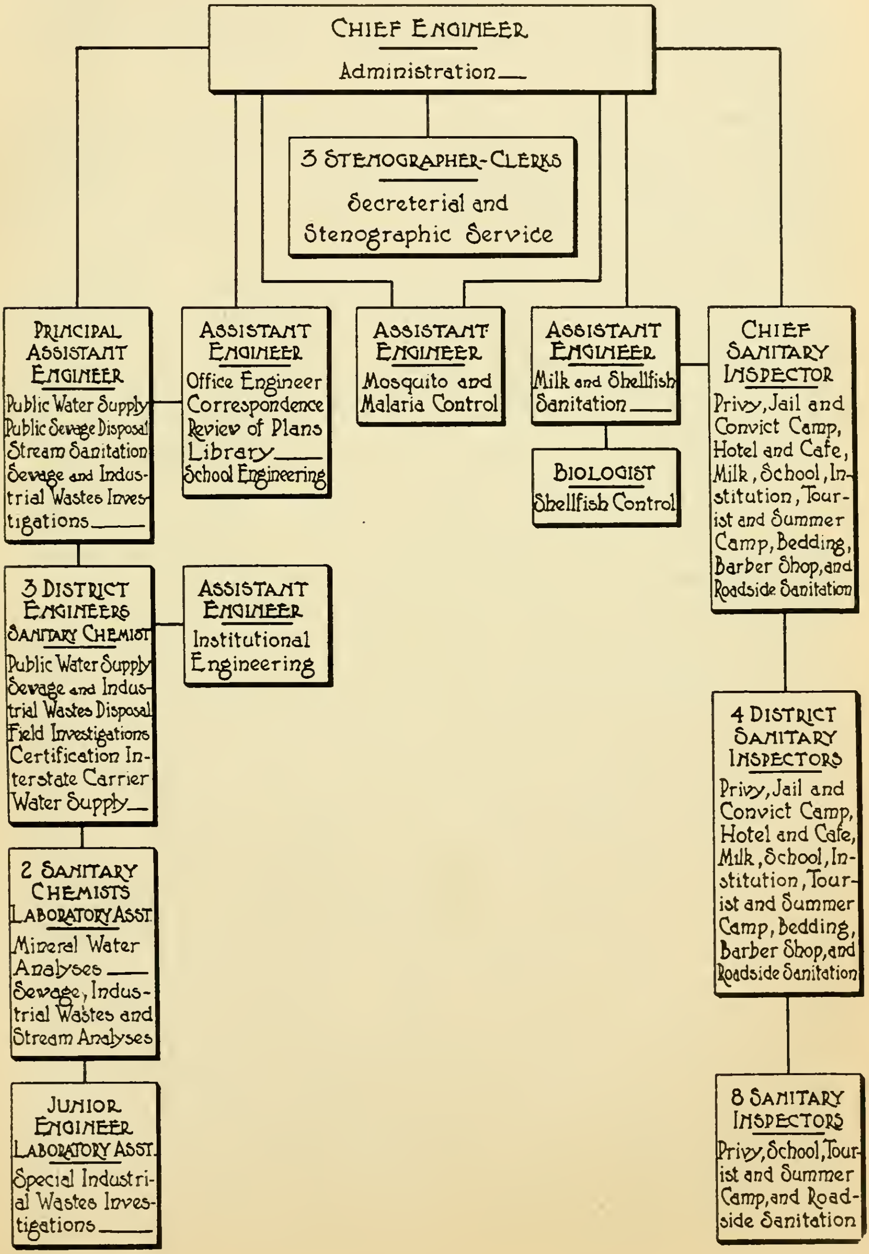
III—Food Sanitation Division

1. Milk Sanitation (1924)
2. Shellfish sanitation (1925)

ORGANIZATION OF BUREAU

The accompanying chart is designed to show in a general way the organization of the bureau, the duties of the personnel and the interrelationships of the various activities. A more detailed account of the functioning of the organization will be given later in this report.

ORGANIZATION OF THE BUREAU OF ENGINEERING AND INSPECTION
NORTH CAROLINA STATE BOARD OF HEALTH


CHIEF ENGINEER
Administration
3 STENOGRAPHER-CLERKS
Secreterial and Stenographic Service
PRINCIPAL ASSISTANT ENGINEER
Public Water Supply
Public Sewage Disposal
Stream Sanitation
Sewage and Industrial Wastes Investigations
ASSISTANT ENGINEER
Office Engineer
Correspondence
Review of Plans
Library
School Engineering
ASSISTANT ENGINEER
Mosquito and Malaria Control
ASSISTANT ENGINEER
Milk and Shellfish Sanitation
BIOLOGIST
Shellfish Control
CHIEF SANITARY INSPECTOR
Privy, Jail and Convict Camp, Hotel and Cafe, Milk, School, Institution, Tourist and Summer Camp, Bedding, Barber Shop, and Roadside Sanitation
3 DISTRICT ENGINEERS
SANITARY CHEMIST
Public Water Supply
Sewage and Industrial Wastes Disposal
Field Investigations
Certification Interstate Carrier Water Supply
ASSISTANT ENGINEER
Institutional Engineering
2 SANITARY CHEMISTS
LABORATORY ASST.
Mineral Water Analyses
Sewage, Industrial Wastes and Stream Analyses
JUNIOR ENGINEER
LABORATORY ASST.
Special Industrial Wastes Investigations
4 DISTRICT SANITARY INSPECTORS
Privy, Jail and Convict Camp, Hotel and Cafe, Milk, School, Institution, Tourist and Summer Camp, Bedding, Barber Shop, and Roadside Sanitation
8 SANITARY INSPECTORS
Privy, School, Tourist and Summer Camp, and Roadside Sanitation

I—SANITARY INSPECTION DIVISION

1—ENFORCEMENT OF STATE SANITARY PRIVY LAW

Objective: The purpose in this activity is the prevention of spread of infectious diseases that are caused by the insanitary disposal of human excreta.

Methods: In 1917 the legislature appropriated $15,000 to be used as a supplement to funds available from the Federal Government and public health foundations, on a 1 to 3 basis, for the purpose of stimulating rural sanitation, but provided that none of this fund should be expended except as a supplement to funds given by outside sources. The General Assembly of 1919 enacted legislation, considered bold at the time, providing that no person shall maintain or use a residence, located within three hundred yards of another residence, that is not provided with sewerage or with a sanitary privy complying in construction and maintenance with the requirements of the State Board of Health, and authorizing the Board to enforce this act. This statewide sanitary privy law was the first of its kind in the country, and remained the only one until the last two years when two other States, guided by North Carolina's successful experience, enacted similar legislation. For the past eleven years this bureau has been engaged with the rigid enforcement of this statute, involving more than 650,000 inspections of privies. This is accomplished through a force of sanitary inspectors, the present organization consisting of a chief inspector, four district supervising inspectors and eight inspectors. The chief inspector, in addition to supervising the activities of the division, is charged with the inspection of jails and convict camps, hotels, cafes, schools, State institutions, milk supplies, tourist and summer camps, bedding manufacturing and selling establishments, barber shops, and roadside stations in a definite district of the State. He is employed jointly with the State Department of Public Welfare, and devotes about one-half of his time to the prison, jail and convict camp work of that department. The four district supervising inspectors are responsible for all of the sanitation activities mentioned above in their respective districts, and maintain close supervision over the work of the sanitary inspection in their districts. The eight sanitary inspectors are charged with the inspection, construction and maintenance of Sanitary Privies, the sanitation of schools, tourist and summer camps and roadside establishments and the investigation of special complaints in their area. The county is the unit of work in sanitary inspection. When an inspector is detailed to a county, he remains there until all privies, schools, camps and wayside stations which come within the scope of the law and regulations, are sanitated. He is then transferred to another county. Where local health departments exist, the inspectors work in close coöperation with those organization. The inspectors distribute sanitation literature, inspect privies, cite defects of privy construction and maintenance, advise and show property owners and tenants how to remedy these defects, issue notices for compliance with the law, and where unable to secure compliance with reasonable effort within the time limit of the official notice they prosecute the violator in the magistrate's court. They secure the adoption of local ordinances requiring connection to the public sewerage system where available, encourage municipalities in the extension of their sewers to outlying districts, and assist the local sanitary officials in the enforcement of sewer connections. They stimulate the installation of new public water supplies and sewerage systems, and, wherever such improvements are seriously considered or undertaken, concessions are granted in the enforcement of the privy law pending the completion of the work, in order that money may not be needlessly spent for privies soon to be abandoned. The policy governing this activity is one of coöperation and service. Inspectors maintain the attitude of assisting the violator rather than compelling compliance with any law or regulation, and invoke the law only in obstinate cases where reason and persuasion are of no avail. The rapid decrease in prosecutions during the decade attests the wisdom of this policy of education of the public.

In addition to the building and maintenance of sanitary privies, the inspection force has devoted much attention in recent years to the sanitation of country schools, dairies, hotels and cafes and to investigations of typhoid in rural communities and mill villages. Much time has been given to local health departments for coöperative activities and for instruction of their sanitary inspection personnel in the methods and standards of this department. In several localities county-wide programs of sanitation have been carried out in conjunction with local health organizations.

For the past three years the sanitary inspectors have obtained and tabulated information for each home served by the excreta disposal facilities inspected to indicate the names of owner and occupant of the property, whether the home is inside or outside of the corporate limits of municipalities, the type of privy or sewage disposal employed, the procedure by which improvements were effected, the unused depths of pit in the earth pit type of privies, the items found defective in privy maintenance, the number of persons in the home, the number having typhoid vaccinations within three years, the number of cases and deaths from typhoid in the last three years and the type and protection of the water supply used by the family. From such a sanitation census, which will shortly cover the entire state and include upwards of 200,000 homes, very valuable basic information can be obtained upon the life of privy buildings and pits and their defects in design, upon the sources of typhoid infection, whether from insanitary excreta disposal or from improperly protected water supplies, and upon the relative merits of sanitation and immunization as preventive measures in controlling typhoid.

Epidemiological and vital statistic records of typhoid cases and deaths have been studied with reference to the foci of their occurrence and correlated with the sanitary protection afforded in the urban, incorporated and rural communities. Since the sanitary privy law does not apply to strictly rural sections of the State on the theory that isolation itself is a most effective means of preventing the spread of intestinal diseases, these comparisons of morbidity and mortality rates are very illuminating and convincing arguments for sanitation.

Results: The items listed below represent the principle accomplishments in this activity of privy sanitation. So far as available records permit, the figures indicate the results obtained during each biennium of the eleven years of the bureau's work under the present administration:

Items	For biennium ending June 30					
	1920	1922	1924	1926	1928	1930
Privies inspected	63,107	151,796	154,600	73,592	80,517	60,308
Sewer connections made	------	------	5,268	6,107	6,442	2,077
Septic tanks constructed	------	------	132	842	854	921
Privies condemned in sewer areas	------	------	------	------	2,073	1,450
Prosecutions under privy law	1,500	834	1,382	989	672	285
Investigations of special complaints	------	------	528	153	27	------

It will be noticed that in the last few years there has been a considerable decrease in the number of privy inspections and sewer connections. A number of causes are responsible for this, among which the most important are: the assumption of new bureau activities, which will be discussed later, employing the inspection personnel in their execution; typhoid fever investigations in rural communities; sanitation of dairy water supplies and sewage disposal facilities in connection with the enforcement of the U. S. P. H. S. Standard Milk Ordinance in sixty-five towns of the State; county-wide programs of sanitation in coöperation with county health departments; more intensive rural school sanitation; the collection and reporting of detailed sanitation and typhoid history data for each home sanitated; the training and assistance given to the inspection personnel of local health departments; the depressed economic situation which has caused more householders to undertake their own privy construction and necessitated individual supervision of the work by the inspectors; reduction in number of sanitary inspectors engaged in privy law enforcement due to insufficient funds; and the misunderstanding on the part of the public of the former mass-production methods of privy construction where trained carpenters often followed the inspectors in their work. Especially has this last factor deterred the rapidity of privy building. As a result of unfounded suspicions of collusion between inspectors and itinerant, the bureau issued strict orders three years ago directing inspectors to prevent and discourage workmen as far as possible, from following them from place to place. This order has made it necessary to train an inexperienced man in the construction of practically every privy and to give every job detailed attention. The net result has been to lower the standard of construction, to increase the unit cost and to impair the efficiency of the inspection force to a very great extent.

Typhoid History and Water Supply Survey of Homes Sanitated by Inspection Division

During the past three years the sanitary inspectors, in addition to their other duties, have obtained complete typhoid histories at all homes which have been sanitated by approved privies in that period, have collected information regarding the maintenance of privies previously built, such as rates of filling of earth pits under different conditions of soil and usage and development of defects in construction, and secured full data on the types of water supply used in these homes. It is believed that such information, covering so large a part of the semi-rural population of the State will be very valuable to health agencies in affording an indication of the relative merits of sanitation and immunization in the control of typhoid fever incidence, in indicating the useful life of sanitary privies of the type analyzed in North Carolina and their weak points in construction and maintenance, and in estimating the importance of private water supply protection in the control of typhoid transmission.

The data on family typhoid history and water supply which have been collected in the counties in which the sanitation work has been completed and reports filed during the three-year period are given in the following table:

Counties in which sanitation program completed	58
Number of homes sanitated	50,578
Population of homes sanitated	199,822

Typhoid History

Number vaccinated in last 3 years	36,313
Number cases typhoid in last 3 years	1,260
Number deaths from typhoid in last 3 years	62

Water Supply

Homes served by open well	15,552
Homes served by well with pump	18,685
Homes served by municipal water supply	14,942
Homes served by spring	1,181
Homes served by cistern	218

It is noteworthy that, in spite of educational measures and intensive typhoid vaccination campaigns, only 18 per cent of the people living in the semi-urban homes included in this representative survey have availed themselves of the protection afforded by vaccine. This indicates that sanitation of environment must be depended upon to safeguard four out of every five of these persons. The number of vaccinations reported in this survey is of course not absolutely accurate, but probably indicates a greater vaccination ratio than actually exists because it is found that unless questioned closely the average person that has been vaccinated for smallpox or anything else will at first answer in the affirmative as to typhoid vaccination. Typhoid incidence is obviously still far too high. This condition is due to a variety of causes,—lack of immunization, insanitary disposal of excrement, unprotected water supplies,—and constitutes an insistent demand for improved sanitation. Almost one-third of the homes surveyed obtained water from open and unprotected wells and springs, and in general the privies were old and in a bad state of maintenance, due to long intervals that must elapse between sanitation surveys because of the limited force of inspectors.

When more complete data are secured, it is hoped to find some very interesting correlations between typhoid incidence and vaccination, water supply and privy maintenance.

Typhoid Morbidity Rates

From the case reports of the Bureau of Epidemiology the following table has been prepared showing the typhoid morbidity rates for the State for the past three years. The cases have been segregated according to race and place of residence, and the typhoid rates expressed in cases per 100,000 population:

TYPHOID MORBIDITY RATES

Typhoid Cases per 100,000 Population

Year	*General**	*White*	*Colored*	*Incorporated Places*	*Rural†*
1927	44.0	39.0	56.0	47.1	42.5
1928	36.4	31.2	49.2	42.4	33.8
1929	29.3	24.6	41.0	32.3	28.0

From these figures it is seen that in each classification typhoid fever is declining at a most encouraging rate. In this three-year period the general State rate has been diminished by 33.3 percent, the general white rate by 37 percent, the general colored rate by 26.8 percent, the rate for all incorporated places by 31.5 percent, and the rate for rural communities by 34 percent. But a noteworthy and important public health fact is revealed by comparison of the rates for the white and colored races. While the case rate for white population is only 24.6, the corresponding rate for negroes is 41.0, or 67 percent higher than for whites. This difference is undoubtedly due to the difference in living conditions, and mainly to the inferior sanitation of negro homes and environment, but it is a condition which should, and can, be greatly improved by the continuance of strict sanitary measures. In fact, in this population group typhoid control measures other than sanitation avail little.

The typhoid rate for incorporated towns and cities remains somewhat above the State average, while the rural rate is slightly below. This differential is expected, due to the greater opportunity for dissemination of the disease in densely populated communities. Before the day of State-wide privy sanitation of these populous areas, public water supply and sewage disposal improvement, the differential was tremendously greater. Moreover, privy sanitation in cities, towns and villages has had the effect of reducing the rural rate,—directly by including in its scope all rural areas within one mile of community centers or from town and city limits, and indirectly by removing foci of typhoid infection from the populous districts where rural typhoid formerly had its principal source. Furthermore, more than half the total number of privies sanitated are located outside the corporate limits of any city or incorporated place, in rural areas, surrounding municipalities, in mill villages and other unincorporated places.

It should be noted also that in the "urban" communities there are usually one or more hospitals and that all deaths occurring in these hospitals are charged to the community in which the hospital is located regardless of the origin of the case. This tends to show a higher "urban" death rate than actually exists.

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* "General" rates are for entire State, regardless of race or residence.

† "Rural" refers to population living outside of incorporated places.

Typhoid Mortality Rates

From the official records of typhiod deaths filed with the Bureau of Vital Statistics the following table has been prepared showing the typhoid mortality rates for the past thirteen years. The deaths have been classified into several divisions according to race and residence and the rates expressed in deaths per 100,000 population. Computations were made on the basis of U. S. Census reports and estimates of population.

TYPHOID DEATHS PER 100,000 POPULATION

Year	General (1)	White	Colored	Total Urban (2)	Urban White	Urban Colored	Total Rural (3)	Rural White	Rural Colored	Total Incorporated Places (4)
1917	30.2	23.5	44.0	40.2	26.4	64.4	29.0	23.3	41.9	--------
1918	22.2	18.1	34.2	38.2	27.2	57.7	21.6	17.5	31.6	29.5
	State	wide sa	nitary	privy w	ork inst	ituted.				
1919	17.0	14.4	24.5	22.6	20.8	25.8	17.3	14.3	17.6	18.8
1920	12.5	9.9	19.9	14.6	6.8	29.1	12.1	9.6	18.3	13.8
	Public	water	supply	activity	institu	ted.				
1921	11.7	8.6	19.8	9.8	5.1	18.5	12.3	9.1	20.1	9.5
1922	11.2	8.3	18.2	14.6	10.0	23.3	10.8	8.1	17.3	9.9
1923	9.9	7.0	15.7	11.4	8.7	16.6	9.3	6.6	16.0	9.5
1924	9.9	6.1	18.9	10.9	5.7	21.3	9.7	6.1	18.4	9.7
1925	9.8	6.5	17.7	7.3	4.9	12.1	10.2	6.8	18.8	9.1
1926	9.4	6.6	15.9	7.6	5.5	11.9	9.8	6.8	16.7	8.1
1927	7.8	5.7	12.8	10.3	5.6	19.0	7.3	5.8	11.3	9.5
1928	6.3	4.2	11.5	6.7	4.8	10.4	6.3	4.1	11.8	6.5
1929	5.2	3.3	11.0	6.8	5.0	10.2	5.2	2.9	11.2	5.9

(1) "General" rates are for entire state, regardless of race or residence.

(2) "Urban" refers to cities of 10,000 population or more, as classified by U. S. Census Bureau.

(3) "Rural" refers to towns of less than 10,000 population and to rural regions.

(4) "Total Incorporated" refers to populations in all incorporated places.

These figures speak loudly and authoritatively in proclaiming the conservation of life in the State through the preventive public health measures which have been carried into execution in the short space of thirteen years. Without the decrease in typhoid death rate that has been effected even in this period the State would have lost last year 960 persons from typhoid instead of 164—a life-saving of 796 persons from typhoid in one year may be attributed to public health activity.

Phenomenal has been the reduction in typhoid death rate. A few years ago North Carolina was listed among the states having the highest death rates from this malady; today its rate compares favorably with that of any state, and, with the present rate of decrease, it should in a few years be as low as any in the nation.

How much of this effect is due directly or indirectly to improved sanitation it is difficult to estimate and impossible to establish. But it is reasonable to believe that the enforcement of domestic sanitation through the rigid execution of the strict requirements of the State-wide sanitary law has been the major factor in the accomplishment of this result. Hardly less significant can be the results achieved through the improvement and protection of public water, milk and food supplies. It is safe to say that preventive public health measures directed toward the sanitation of environment are of paramount importance.

It has been previously noted that typhoid morbidity rates for negroes are greatly in excess of those for whites. From the mortality figures above an even greater difference is observed between the typhoid death rates for the two races. For the State as a whole the negro rate is 3.3 times the white rate; for urban populations it is more than twice as great; and for rural communities it is 3.9 times as great. Typhoid seems to be a much more virulent disease in the case of negroes than it is with white people as the following tabulation for the past three years period indicates:

PERCENTAGE TYPHOID CASES RESULTING IN DEATHS

Year	*General*	*White*	*Colored*
1927	19.2	14.7	22.9
1928	17.3	13.4	23.4
1929	18.8	13.3	26.9
Mean	18.4	13.8	24.4

Much has been accomplished in ridding the State of the scourage of typhoid and other intestinal diseases, but much remains to be done. The negro typhoid problem is one of many which effective sanitation can solve. The general typhoid rate is yet too high. Urban rates can be greatly decreased by continued and concentrated effort, and the time has arrived when general public health protection demands that State-wide sanitation measures be extended to all rural districts. A lapse in vigilance will result in the loss of results already achieved and a return of the death rates of former years. By effective and complete sanitation typhoid fever may become an unknown disease, banished from the country as have been cholera and yellow fever.

2—SCHOOL SANITATION

Objective: By the general sanitation of school buildings and surroundings and the provision of safe water supplies and sewage disposal facilities every effort is made to protect school children, teachers and their families from infectious diseases, to inculcate in them an appreciation of the principles and practices of sanitation, to be employed in their homes and carried with them into life, and to emphasize the indirect beneficent effects on health and happiness of cleanliness of body and environment.

Methods: The General Assembly of 1919 enacted legislation requiring the provision of adequate sanitary equipment for the public schools of the State. Field work was actively undertaken during the same year and carried on conjointly with the administration of the State-wide sanitary privy law. The sanitary facilities of the schools were found to be in a deplorable condition generally, especially so in the country districts, where, in most cases, no provisions other than those afforded by Nature herself, had been made for lending privacy or disposing of excremental matter. Water was usually carried from a spring located below the school grounds or drawn by a rope and bucket from an open well.

School buildings were remote and small, poorly lighted, heated and ventilated, and, with their surroundings, filthily kept. With the phenomenal improvement in educational facilities in the last few years have come hundreds of large consolidated schools with modern buildings, running water from safe sources, plumbing and suitable sewage disposal devices for the protection of both the school community and the streams receiving the discharged wastes. It has been the business of this bureau to promote sanitation in these schools, and maintain the sanitary facilities on a parity with the other physical features, a task of education of the educators in many instances. Where water carriage of excreta could not be provided, modern sanitary privies have been built and the water supplies brought to safe standards; where plumbing systems have been installed, adequate and safe water supplies have been developed, sanitary drinking fountains, toilet and wash rooms provided and suitable sewage treatment plants constructed by the plans and under the supervision of this bureau. When new schools are to be built or reconstruction of inadequate facilities are required, the inspector makes a thorough field investigation, submits a report containing all essential data, with recommendations, to the school engineering service division in the main office of the bureau, standard plans are prepared for the proper units and forwarded through State or County school officials to the local school board. When the contract for improvements is let the inspector supervises the construction, seeing that all prescribed units are installed in accordance with the plans and specifications furnished. It is the duty of every inspector to check at frequent intervals the sanitation of all the schools in his district and to enforce strict standards of maintenance. In the counties having health departments more frequent inspections are afforded by the inspection personnel of the local unit, and in many counties the boards of education have made provision for regular maintenance and repair of the sanitary plants of all schools in the county.

Results: During the last biennium the sanitary inspection division has secured the installation of sanitary facilities meeting the standards of the State Board of Health in all of the schools of twenty-nine counties of the State. In forty-five other counties sanitation of a large proportion of the rural schools has been effected, and in several other counties assistance has been rendered to local health departments in carrying out county-wide programs of school sanitation. This work is accomplished by the sanitary inspectors in conjunction with their other duties in the areas to which they are assigned, and in the near future it is expected that the entire State will be covered and all the schools of every county sanitated.

3—STATE INSTITUTION SANITATION

Objective: The purpose of this activity is the maintenance of sanitary conditions at all of the public institutions of the State.

Methods: The statutes require the State Board of Health to make at least one inspection each year of all State institutions and to make a report as to their sanitary conditions, with suggestions and recommendations, to their respective boards of directors or trustees. These inspections are made regularly by the chief and district inspectors and reported on standard forms giving complete information on the adequacy and safety of ventilation, water supply, plumbing and sewage disposal facilities, milk and food supply, lighting and sanitation of buildings, recreational facilities, medical supervision, laundry equipment and methods, and environmental conditions. Copies of these reports are forwarded to the governing boards of the institutions with recommendations for the correction of sanitary defects and improvements of conditions which affect the health of the institutional population.

Results: During this biennium, as in previous ones since 1920, an annual inspection has been made of all the institutions and reports rendered to the responsible officials. There are now thirty-six such institutions operated by the State, consisting of the following: Universities, colleges and normal schools for white, 9; colleges and normal schools for negroes, 5; schools for the blind, mute and deaf, 3; schools for feeble minded, 1; homes for soldiers and soldiers' widows, 2; orphanages, 2; sanatoria and hospitals, 2; insane asylums, 3; reformatories, 6; prisons and prison camps, 3. The population of these State institutions is about twenty-one thousand. In the biennial period 144 complete inspections have been made of these institutions, with numerous additional visits for special purposes. The Director of the Bureau visits all of the institutions each year in company with the Advisory Budget Commission and at that time makes a complete sanitary investigation.

In the course of serving as assistant to the committees of the Budget Commission making annual tours of inspection of State institutions all of the institutions have been inspected in addition each year by the director of the bureau making a total of 72 such inspections for the biennium.

Through policies developed out of this joint plan of study of institution problems much more effective aid has been rendered institutions in the interest of health sanitary management, improved economy in the development and operation of institution utilities, and the direction of the proper official attention to the more outstanding needs of institutions.

4—HOTEL AND RESTAURANT SANITATION

Objective: The objective in this activity is the improvement in sanitary management of the hotels, restaurants and other eating places of the State and the protection of the public against disease infection through the media of insanitary lodgings, food and drink.

Methods: The General Assembly of 1917 enacted legislation providing for the sanitary inspection and conduct of hotels and restaurants. This law was found to be inadequate and inoperable and was repealed by the 1921 legislature, when a revised statute was enacted authorizing the State Board of Health to prepare definite rules and regulations for hotel and cafe sanitation and to enforce the provisions of the act. Regulations were designed to require safe but reasonable standards of sanitation in each item of equipment and management, and were made clear and definite in every detail. Score sheets were prepared to include all items, each being evaluated according to its public health significance.

Inspections are conducted by the chief and district inspectors of the bureau, who call unannounced at the establishment, make the inspection in company with the proprietor or manager, point out to him the sanitary defects, and check them on the score sheet, leave one copy of the report with him for information and guidance and forward a duplicate copy to the Raleigh office. An official inspection certificate is prepared showing the rating and the sanitary score, which is forwarded to the manager of the establishment, and which must be kept posted in a conspicuous place until a reinspection is made. Inspections are made about once a year, unless it appears that more frequent inspections are advisable, unless complaints are filed indicating the existence of insanitary conditions, or unless a reinspection is requested by the management. Ratings of hotels and cafes in the A, B, C and D classifications is based on the sanitary score, a minimum score of 70 being required for operation. Where the score falls below this grade the violators are given the choice of closing up temporarily for improvements, closing up permanently, or submitting to prosecution for violation of the law.

In cities and counties with local health departments having inspection personnel, the inspectors train the local men in the methods and standards of the bureau, effect uniformity in grading and coöperate with them in the administration of the work.

Results: Active field work in this activity was begun in 1921, immediately following the enactment of the revised law, and has been prosecuted vigorously and rigidly for the ten-year period. The accomplishments during this time are indicated but partially by the figures in the table below. The major achievement is reflected in the tremendous improvement in the sanitary equipment and operation of the hotel and restaurant establishments.

	For Biennium ending June 30				
Items	*1922*	*1924*	*1926*	*1928*	*1930*
Hotels and Cafes inspected	537	1,008	900	529	2,788
Hotels and Cafes rated	—	439	492	415	1,897
Prosecutions under Hotel and Cafe law	—	77	66	39	48
Hotels and Cafes closed	—	—	17	—	—

The difference between the number of inspections and ratings represents reinspections made for checking maintenance and determining whether recommended improvements had been made. It is noteworthy that the ratio between prosecutions and inspections has decreased rapidly during the decade.

5—JAIL AND CONVICT CAMP REGULATION

Objectives: The objectives in this activity are: (a) the provision of sanitary protection and hygienic care for all prisoners of the State and (b) coöperation with the State Department of Public Welfare in providing for the welfare and humane treatment of prisoners.

Methods: The General Assembly of 1917 enacted legislation giving to the State Board of Health supervision of all jails, convict camps and prisons of cities, counties and the State in regard to method of construction, sanitary and hygienic operation, and authorized the Board to formulate and enforce the necessary regulations for such control. This act also provided for regulations governing the treatment, handling and work of prisoners and designated the State Department of Welfare as the supervising and enforcement agency. These two departments working independently exercised the duties assigned to them from 1917 to 1925, but, due to lack of funds and suitable personnel the urgency of other activities and the wide separation of jails and convict camps over the State, the work was desultory, inefficient and expensive for the results achieved. Realizing that the interests of the two State agencies were parallel and closely related, finding that violations of health regulations were usually accompanied by violations of the welfare laws, and with the desire to eliminate duplication of work and travel and consolidate governmental activities in agencies best qualified and equipped to handle them, the two departments in 1925, worked out a plan of coöperation whereby the jail and convict work of both would be carried on by one corps of field men. The chief inspector of this bureau was also made an official of the Welfare Department and placed in charge of both health and welfare activities in the penal institutions. This man has the assistance of the district inspectors in enforcing the statutes and regulations pertaining to the sanitary and hygienic care of prisoners.

Regulations have been developed providing practical and economic means of affording sanitary protection to prisoners, which are clean, specific and easily complied with. The policy of the bureau is to coöperate with local responsible officials and render them all possible advice and assistance in working out necessary improvements, but where the spirit of coöperation is lacking results can be obtained only through rigid enforcement of the statutes and prosecution.

All of the jails, prisons and convict camps in the State are inspected at least once each year, many of them several times. Standard inspection forms are used, on which defects are checked and the scores noted. One copy of this report is furnished to the superintendent of the institution, and one forwarded to the Raleigh office. If the score is passing, an official "Approved" placard and certificate are issued; if not, a "Disapproved" poster and notice are sent to the proper officials and immediate steps taken to correct the sanitary defects.

Where local health departments are engaged in jail and convict camp sanitation, the inspectors of this bureau train their inspection personnel and render them all possible assistance in their work.

Results: The following table indicates the results that have been achieved in this activity during the period of active field work:

Items	*For Biennium ending June 30* *1928*	*1930*
COUNTY JAIL IMPROVEMENTS		
New county jails constructed or under construction	27	2
County jails, improved and repaired	32	5
County jails disapproved and use discontinued	8	5
County jails inspected and reinspected	100	100
CITY JAIL IMPROVEMENTS		
New city jails constructed	10	2
City jails improved and repaired	12	1
City jails inspected and reinspected	36	39
CONVICT CAMP IMPROVEMENTS		
New prison camps constructed or under construction	19	10
Prison camps improved and repaired	44	5
Counties maintaining prison camps	43	49
Counties abolishing prison camps	6	0
Conferences with county commissioners	..	14
Prison camps inspected and reinspected	74	80

The sanitary and hygienic conditions affecting the health of prisoners have been examined with care. More favorable locations have been selected for prisons and convict camps, with naturally drained sites having minimum exposure to nuisances and remoteness from fly and mosquito breeding places and with major emphasis upon water supply and sewage disposal facilities.

The water supplies of the prisons have been inspected and samples collected for analysis by the State Laboratory of Hygiene to determine their safety for drinking purposes. Several of them have been condemned on account of insanitary surroundings or dangerous bacterial contaminaation.

The air space and ventilation of jails, prison cages and solitary confinement cells have been investigated and improvements effected where required.

Improved bathing facilities, with hot and cold water showers, have been installed in a great majority of the prisons, camps and jails. Sewerage systems have been installed wherever running water is available, and where water carriage is not possible sanitary pit privies have been constructed for excreta disposal. Heating and lighting systems found inadequate have been corrected. The methods for handling, storing and disposal of garbage and rubbish have been improved.

Prisoners with venereal and other infectious diseases are required to be isolated from the non-infected prisoners. Prison officials, physicians and health officers have been found to observe this requirement very satisfactorily. Ouly seven prison camps or jails have experienced an outbreak of contagious diseases within the past two years. These were very mild and no deaths resulted.

The average prison population of North Carolina, including all town, city, county and State institutions is about 5,000.

6—BEDDING SANITATION

Objective: The purposes in this activity are: (a) the protection of the public against diseases transmitted by infected bedding and (b) the prevention of fraudulent discription of materials used in bedding manufacture.

Methods: The General Assembly of 1923 enacted legislation governing the manufacture, labeling and sale of bedding materials and authorized the State Board of Health to prepare suitable sanitary regulations and enforce the provisions of the act. No provisions were made in this law for funds with which to carry on the work, nor was any machinery provided for raising the necessary funds. In an organization already overloaded with activities and with a very restricted budget it was impossible to assume this new responsibility, requiring for effective administration a great amount of intensive field work. So, rather than attempt a task doomed to failure, which would bring discredit upon the bureau and result in disrespect for the law, no steps were taken toward active enforcement of the law. After conferences with the bedding manufacturers, an amended bill was framed, and subsequently passed by the 1925 legislature, providing for funds for the enforcement of the statute through the sale of official tags at $10.00 per thousand by the State Board of Health.

The law as amended presented difficulties of interpretation of details of the law and its enforcement. A series of hearings and conferences with bedding manufacturers followed, extending over a four-year period, at which all points of view were brought to bear on the matter and agreements reached as to the interpretation of each section of the law and the methods of enforcement. Field work was begun by the inspection force in the spring of 1929.

The work is administered through the chief inspector and the four district inspectors, each being responsible for rigid supervision of the manufacture and merchandizing establishments in his area. Frequent inspections are made to determine whether all articles of bedding offered for sale are provided with official labels, whether the labels indicate correctly the materials used in manufacture, whether used materials are employed illegally, whether proper sterilization and labeling are employed for second-hand equipment and whether articles exposed to infectious or contagious disease are offered for sale. Where violations of the law are found, the inspectors either obtain immediate compliance or prosecute the violator in the courts, depending upon the gravity of the offense.

Results: During the fourteen months of active field work in enforcement of the bedding law the following results have been accomplished.

Items	*For Biennium Ending June 30, 1930*
Bedding tags sold	513,004
Bedding establishment inspections	1,258
Prosecutions under Bedding Law	18

All of the prosecutions have been for gross violations of the law, usually for the sale of second-hand bedding that has been used by persons having contagious diseases or for the use of filthy material in filling mattresses. Generally the manufacturers and dealers have shown a splendid spirit of coöperation and have readily complied with the law. Most violations are technical or trivial and are due to ignorance or misinterpretation of the requirements of the act.

It has been found that the income afforded by the sale of tags at $10.00 per thousand is insufficient to continue the work of inspection and supervision. At a recent conference with representatives of the bedding concerns they agreed voluntarily to purchase tags at two cents each to carry the activity until the 1931 legislature can revise the price schedule for labels or otherwise provide for continued enforcement.

7—SUMMER AND TOURIST CAMP SANITATION

Objective: The objectives in this activity are: (a) to provide sanitary protection to the many people who attend the numerous resorts and summer camps of the State, to minimize the chance of infection by and dissemination of contagious diseases at these places and to establish more healthful and attractive surroundings, (b) to protect the tourists who visit the State and patronize the many roadside camps by proper sanitation of these establishments, and (c) to safeguard the public water supplies of the State by sanitary control of camps of various kinds located on the watersheds of streams used as sources of supply.

Methods: Under authority of the public water supply laws the State Board of Health in 1924 adopted regulations governing the establishment, operation and maintenance of picnic grounds, construction, labor, resort or tourist camps on the watersheds of streams used as public water supply sources, with specific requirements as to camp location, water supply, garbage and refuse handling, toilet facilities and excreta disposal, posting of the camp and general sanitary maintenance. Realizing the great public health significance of the rapid development of the summer recreational camp business in the State, appreciative of the false sense of security that the public entertains in considering the summer camp synonomous with better health, and mindful of the much greater difficulty in providing a sanitary environment in a temporary institution such as a camp than in a permanent and well organized municipality, the State Board of Health in January, 1926, adopted rules or standards for the sanitary maintenance and operation of summer camps. These regulations specify the standards that must be met with respect to location, water, milk and food supply, dining room, kitchen and pantry. Servants, sleeping quarters, garbage and waste handling, toilet facilities, sewage disposal and general camp surroundings in order for the camp to receive approval of the State Board of Health. Compliance with these regulations by the camp management is voluntary except with the respect to water supply and sewage disposal. An inspection and score sheet, with all items evaluated according to their public health significance, is provided for citing defects and obtaining ratings. To camps meeting the strict requirements of the regulations certificates of approval are issued, and from time to time lists of approved camps are published. These certificates are eagerly sought for their advertising value, and little difficulty is experienced in obtaining the coöperation of camp officials and full compliance with the regulations.

The inspections are made by the entire inspection force, each man being responsible for the supervision and improvement of the camps in his area. Advice and assistance are given freely to camp managements. Frequent reinspections are made and reported to the bureau office, from which the official certificates of approval are issued, or, if sanitary defects exist, communications are sent stating the improvements required for approval.

Beginning with the 1931 season, it is the plan of the bureau, in coöperation with the State Highway Commission, to erect at the point where the road leading to an approved camp leaves the state highway a pair of standard "Sanitation Approved" signs, giving the name of the camp, with directional arrows and distance in miles to the site. At the camp entrance another such sign will be placed. It is believed that this program will greatly stimulate improved camp sanitation and increase and number meeting approved standards.

Results: In the two years of active field work devoted to this enterprise surprising results have been achieved. In spite of the splendid reputation of many camps in the State, they were found to be in general, woefully deficient in sanitary facilities and methods of operation when initial inspections were made. Especially deficient, and oftimes dangerous, were the water and milk supplies, food handling and sewage disposal. In most of the camps the serious defects have been corrected, and many of them have qualified for approval. On account of the high degree of intelligence of the owners and managers, the commercial nature and competition of the enterprises and the great advertising appeal of State Board of Health approval to anxious parents sending their boys and girls to summer camps, the execution of the work has been comparatively easy and practically automatic. The program has been one of education and coöperation; no compulsion has been necessary.

The following figures represent but poorly the accomplishments. More significant than numbers are the improvements that have been effected.

Items	*For Biennium ending June 30, 1930.*
Summer camps under supervision	66
Summer camps inspections	117
Camps approved as meeting all requirements	25
Camps making major improvements	8

This activity has dealt mainly with the commercially operated camps. A few of the many organization camps such as boy scout, Y. M. C. A. camps and camps maintained by civic organizations have been reached. It has developed however, that the greatest field for improvement lies with these organization camps.

From an administration standpoint this project, which proves to be a very large task on account of the very large number of camps in the state, was undertaken to determine the magnitude and comprehensive handling of the problem and the probable public health value of such activity.

Both the magnitude and probable public health significance have proven to be immensely greater than anticipated. The program has reached most commercially operated but few of the numerous organization camps. Practically all camps have been found to be highly potential foci for the spread of epidemics, upon initial inspection.

The Camp Directors Association has become interested to the extent of adopting a programme of camp legislation to be presented to the general assembly of 1931.

Legislation giving the State Board of Health authority to enforce suitable sanitary requirements together with the provision of sufficient funds for personnel to effectively enforce such regulations will be necessary before much further progress in this highly important rapidly growing public health problem can be made.

8—BARBER SHOP SANITATION

Objective: To prevent the dissemination of contagious disease by barber shops by the enforcement of adequate sanitary regulations.

Methods: The General Assembly of 1929 enacted a law regulating the practice of barbering in the State which authorized the State Board of Health to make reasonable rules and regulations for the sanitary management of barber shops and barber schools, and to enforce the same. This act provided that an annual sum of $6,000, derived from barber registration and annual fees, be appropriated to the State Board of Health for the inspection and enforcement activities. After thorough study and investigation the Board, in August, 1929, adopted specific regulations, required by law to be posted in every shop. Inspection forms to be employed in barbering establishments. Copies of these rules were sent to all barbers in the State, together with a placard containing the regulations, required by law to be posted in every shop. Inspection forms were prepared for the use of the field men, on which essential data and defects could be noted and reported to the bureau office.

The provisions of the law apply only to barber shops located in towns and cities of more than 2,000 population, as determined by the census of 1920, but in smaller places barbers may voluntarily come into the Association, be bound by its regulations and protected by its benefits.

Barber shop inspection and regulation is conducted in the field by the Chief Sanitary Inspector and the district inspectors. Frequent unannounced visits are made to the establishments in their areas. During the first several months of the work the inspectors were engaged in an educational program of explaining the law and regulations and instructing the barbers how to comply with them. On subsequent visits violators have been warned upon first offense and prosecuted in the courts for flagrant, or stubborn and repeated nonconformity with the law.

Results: In general, good coöperation and compliance with the statute and regulations have been secured. During the twelve months period of operation all of the towns and cities coming within the provisions of the act have been covered, some of them several times. The standards of sanitary protection afforded the public have been greatly improved. The table below indicates the scope of activity.

Items	*For Biennium Ending June 30, 1930, (12 months)*
Barber shop inspections	2238
Barber shops approved on first inspection	486
Prosecutions under barber law	350

9—ROADSIDE SANITATION

Objective: To stimulate improved sanitation of filling stations and other roadside establishments which offer drinking water, food, beverages, lodging or comfort station accommodations to the traveling public and to eliminate the spread of infectious disease through these agencies.

Methods: With the rapid growth of the State and the development of a statewide system of paved highways motor travel has increased tremendously in the last few years and hundreds of thousands of tourists have been attracted to the State. For the accommodation of these motorists, filling stations and eating places have sprung up with such rapidity that they now practically line the routes of the State highway system. A recent survey shows that there are more than 15,000 of these establishments in the State, the majority of them providing food, drink or toilet facilities to the public. In general, the sanitation of these places is deplorable, dangerous and disgraceful. Largely because of ignorance of the principles of sanitation, the operators of these stations permit them to become filthy foci of disease infection for the dissemination of typhoid and other intestinal maladies among their millions of unsuspecting or equally uninformed patrons. Without doubt increased travel and patronage of these roadside establishments are largely responsible for the general increase in typhoid during recent years.

In view of this situation the bureau, in the spring of 1930, developed a program of Roadside Sanitation which is now in active operation. In line with the Board's general policy of coöperative endeavor, and inspired by the success achieved in milk sanitation, summer camp sanitation and other activities of similar nature involving this type of competitive commercial enterprises, it was decided that in the absence of law authorizing universal regulation at least some improvement could be accomplished, by offering a service to this group, with official recognition and reward for compliance with strict sanitary standards.

So, there is no element of legal compulsion in this program. Strict regulations have been formulated governing the sanitation of each accommodation offered to the public, compliance with which with respect to all services provided entitles the station to display on the roadside at its place of business two standard 24" x 24" "SANITATION APPROVED" signs bearing a serial number, furnished by the State Board of Health and erected and maintained by the State Highway Commission. At any time that the sanitation of any element of the station fails to meet the prescribed standards, the privilege to display the sign is revoked, and the marker itself removed from the premises.

Copies of the regulations, together with a full explanation of the program and blanks for furnishing essential data and submitting application for inspection, were sent to all roadside stations in the State. When an application for inspection is received it is transmitted to the chief district or sanitary inspector in whose district the station is located, who makes a complete inspection, advises the station manager regarding maintenance or correction of sanitary defects, and submits his report to the bureau office. If the standards are complied with, the Highway Commission is authorized to erect "SANITATION APPROVED" signs at the station, the serial numbers of which become a matter of record with both departments. If the sanitation does not meet approved standards, the station is given opportunity to make the necessary improvements and the benefit of a reinspection. Frequent check-up inspections will be made, and if at any time it is found that improper methods or maintenance are provided the sign will be removed.

The services of the State Highway Patrol have been enlisted for reporting violations of the contract, and, since the markers bear serial numbers, the public is expected to coöperate by informing the department of noncompliance with the regulations.

In counties with health departments maintaining inspection divisions, local inspectors will coöperate in the promotion and execution of this activity.

Results: Although this program has been publicly announced for only one month, the response on the part of station operators, and press and the public has been most encouraging. Several hundred applications for inspection have been received, and the inspection force is busily engaged with the preliminary surveys. Arrangements have been made for securing signs at actual cost of manufacture from the State Highway Commission's shops, and they are now in production. These signs will conform in size, color, style and location with the standards of the Highway Commission and become a part of their sign system.

The bureau feels especially gratified in enlisting the interest and coöperation of the Highway Commission in this program. Their participation insures neatness, standardization, and thorough and expeditious execution of sign erection, and lends a great measure of publicity and public confidence to the program.

Within a few weeks sign erection will begin. When they make their appearance on the highways, and with further education of .the public to their meaning, it is expected that for commercial and competetive reasons there will be an avalanche of requests for roadside station inspections.

II—SANITARY ENGINEERING DIVISION

1—PUBLIC WATER SUPPLY CONTROL

Objective: The purposes in this activity are two-fold:

(a) More extensive public water supply service for the municipalities, mill villages and other congested population groups in the State, and

(b) The most effective possible public health protection in the conservation and sanitary control of water supply sources, and in the design, construction, operation and maintenance of public water supply systems.

Methods: As early as 1879 the General Assembly took steps to protect the public water supplies of the State by passing a law requiring chemical examination for sanitary quality. In the same year the State Board of Health issued educational pamphlets on "Disinfection, Drainage, Drinking Water and Disinfectants" and "Sanitary Engineering." The legislature of 1893 enacted legislation for the protection of the purity of water supplies, which was directed principally toward watershed sanitation, but without an adequate enforcement agency. In 1896 the Board adopted resolutions requiring periodic chemical and bacteriological examination of all public water supplies, and employed part-time personnel for this purpose. During the same year the engineer member of the Board was authorized to make a field investigation of the water supply sources and plants of all State institutions and municipalities. The General Assembly of 1899 amended and extended the previous laws relating to the protection of water supply into a sound, basic and comprehensive code, and gave the State Board of Health broad powers in making and enforcing regulations for the supervision and control of public supplies. In 1900 an arrangement was made with the State Department of Agriculture for regular chemical and bacteriological examination and in 1903 a fee of five dollars per sample was imposed to finance this service. The General Assembly of 1905 established the State Laboratory of Hygiene, passed an act requiring the submission of samples from all public water supplies at least once a month for analysis and imposed an annual tax of $64.00 on each supply for this service. In 1909 a legislative act was passed which required all plans for water works improvements to be filed with and approved by the State Board of Health, and authorized the Board to enact suitable regulations for watershed protection and plant operation and maintenance. In 1911 a full-time sanitary engineer was added to the staff of the Board and placed in charge of the Bureau of Engineering and Education. This constituted the first personnel who was either qualified or responsible for the improvement of public water supplies. Considerable progress was made in plant improvements during his administration of the Bureau, from 1911 to 1918, but, on account of his extensive duties in general public health education, little opportunity was given for field work and the regulation of water supplies was limited almost entirely to the approval of plans, enforcing watershed surveys and bringing the reports of contaminated samples forcibly to the attention of the municipalities and water companies.

In 1919 the Bureau of Sanitary Engineering and Inspection was established under the direction of the present chief engineer. As the sole member of the bureau, he directed his attention for two years to the launching of the state-wide sanitary privy program. In 1921 a sanitary engineer with wide experience in water supply and purification was added to the staff, and a comprehensive field survey of the water supplies of the State was made. Reports were rendered on all supplies, defects pointed out, and recommendations made for bringing the physical equipment of these systems up to modern standards and affording adequate public health protection. Every possible opportunity for the stimulation of public sentiment toward the improvement of water supplies was embraced. Conferences were held and public officials and mass meetings were addressed in the interest of bond issues. Public response was most favorable, due in great measure to confidence in the State Board of Health, established largely by the sanitary inspectors in their thousands of public contacts and by their thorough and satisfactory work. With a broadening field of activity in water supply improvement an additional trained sanitary engineer was employed in 1922, and within four years practically every water supply plant in the State had been built anew or improved and thoroughly modernized. This accomplished, major attention and emphasis were turned to the improvement in the operation of these plants. Additional engineering personnel have been added to the staff as required for the continuance of these programs of plant and operation betterment, and today it is doubtful whether any other state can approach the record of North Carolina in the standards of its water supply facilities or the safety afforded through their trained and skilled operation.

In its promotional activities the bureau uses every opportunity for the education of the public in the public health value of the installation of safe water supply and sewage disposal systems, the protection of water supplies at their sources, and in their purification plants and distribution systems, and in the provision of permanent and adequate works which can cope with emergency conditions and serve the community in its future growth.

In passing upon plans for all waterworks improvements, new systems and extensions, safe standards established by modern waterworks practice are rigidly adhered to, these standards being subscribed to by the leading engineers of the State and employed in their designs. Indeed, the complete coöperation of the engineering profession has been perhaps the most valuable asset to the success of the great improvement program. A provision of the public health law which rarely has been invoked prohibits the award of contracts for water or sewerage work which has not been approved by the State Board of Health.

The operation of filtration plants and other water treatment works has been given special attention, in order to secure more economical and efficient results and more effective public health protection. The same methods used in securing physical improvements have been employed even more diligently in this connection. Wherever possible, specially trained and experienced personnel has been secured. In even the smaller towns of the State it has often been possible to place college men trained in sanitary engineeering in these positions by combining the supervision of water supplies, sewage disposal and milk sanitation under their jurisdiction. The University of North Carolina and State College have coöperated in this program by furnishing men with the necessary technical qualifications. Where insufficient funds are available to employ trained personnel the best qualified operator that the situation affords is secured and given intensive training in his duties by the field engineers. Fortunately, water department personnel is practically free from politics and political interference. Men are chosen on the basis of their merit and qualifications and through long periods of service are able to develop a high degree of skill and proficiency in their profession. Technical men for operation positions are employed almost wholly upon recommendation of the State Board of Health. The bureau maintains close contact with these operators, observes their ability application and adaptability, and with the consent of their employers advances them to better positions as their development warrants. Often the transfer of one man to a larger plant enables six or eight men to move into better positions. This system has been most satisfactory to all concerned, and productive of greater interest and efficiency.

The North Carolina Section of the American Water Works Association through its annual conventions and journal has been a very valuable agency in training plant operators and securing an appreciation on the part of engineers, municipal and water department officials of modern standards of water works practice and the vital public health aspects of the business of water supply. This organization has been sponsored by the bureau, and now includes in its membership, or entertains at its conventions, practically all of the water works men of the State.

For purposes of public water supply control and other allied activities the State is divided into three districts with a resident district sanitary engineer responsible for promotion of water works improvements and the training and supervision of operation in his area. Daily reports of operation of each plant are required to be submitted on standard forms each month through the district engineer to the bureau office.

Results: The major accomplishments for the biennial and decemial periods in connection with public water supply control are given in the following table:

ITEMS	For Biennium Ending June 30					
	1920	1922	1924	1926	1928	1930
MUNICIPAL WATER SUPPLIES:						
Supplies under supervision	132	137	168	180	190	199
Population thus served	292,582	600,000	725,000	768,857	870,141	958,009
Per cent population of State served	23.2	22.6	26.6	26.9	29.7	30.2
Per cent population of incorporated towns served	81.1	78.0	90.3	89.9	97.7	86.9
Capital invested in water supply utilities		25,000,000	31,000,000	37,000,000	41,000,000	45,000,000
Annual cost of operation		2,500,000	3,000,000	3,750,000	4,800,000	5,000,000
Projects completed or under construction		73	83	50	55	13
Population thus served		75,000	361,471	221,736	169,598	205,969
INDUSTRIAL WATER SUPPLIES:						
Supplies under supervision				53	199	201
Population thus served				45,334	83,336	90,000
Per cent of State population thus served				1.6	2.8	2.8
Number filtered surface supplies				4	4	5
Number unfiltered surface supplies				0	2	2
Number ground water supplies				49	193	194
SANITARY DISTRICT WATER SUPPLIES:						
Supplies under supervision						7
Population thus served						26,450
Number districts using approved unfiltered surface municipal supply						6
Number districts using own approved unfiltered surface supply						1
TYPES OF SUPPLIES:						
a— Filtered surface supplies (Municipal, Industrial and Sanitary District):						
Plants under supervision	50	49	63	73	83	91
Population thus served	411,908	415,560	414,530	573,442	677,497	747,083
Plants with trained operators, chemical and bacteriological laboratory control	1	2	24	38	40	64
Population thus served	33,372	79,710	359,390	501,653	521,342	708,629
New filtration plants or major improvements		19	37	10	19	11
Population thus affected			267,762	151,650	133,734	197,670
Plants using sterilization equipment		37	63	73	83	91

ITEMS	For Biennium Ending June 30					
	1920	1922	1926	1928	1928	1920
b— Unfiltered Surface Supplies (Municipal, Industrial and Sanitary District):						
Supplies under supervision	18	22	24	27	25	29
Population thus served	45,313	67,639	69,094	66,916	67,827	105,000
Plants using sterilization equipment		9	19	25	24	28
Population thus served		14,576	63,253	65,388	66,219	104,400
c— Ground Water Supplies (Municipal, Industrial and Sanitary District):						
Supplies under supervision	64	64	76	138	296	295
Population thus served	135,361	116,800	138,881	177,642	227,010	222,376
Plants using sterilization equipment		8	6	10	15	15
RECAPITULATION:						
Total public supplies supervised	132	137	168	233	389	407
Total population served by supervised public water supply	592,582	600,000	725,000	814,191	953,477	1,074,459
Per cent State population so served	23.2	22.6	26.6	28.5	32.5	33.9
Per cent population incorporated towns so served	81.1	78.0	90.3	95.2	106.8	110
Number visits to water supply plants for inspection or supervision of operation		317	750	750	721	800

Prior to the beginning of the State Institution Engineering Service of the bureau in 1927 the water supplies of the State institutions were supervised as public supplies and are included as such in the table above for each biennium before 1928. Since that time these supplies have been handled under a special activity and are reported subsequently under the Institution Engineering Service.

State Board of Health supervision continues to be an aid of safeguarding municipalities against incompetent engineering service. This protection has been particularly valuable to small towns who usually employ engineering service for the first time on the "bargain-counter" plan. During the decade all new plants and improvements have been designed and built in strict accordance with the best recognized principles of modern water supply and purification practice, and North Carolina engineers get credit for handling all of the larger projects and most of the smaller ones.

No requirements have been made of municipalities and industries in excess of those essential to adequate water supply and public health protection. By this policy the State Board of Health has helped to reduce expenditure for water supply utilities to a minimum consistent with safety, and has been able to secure the improvements necessary to bring the water plants to modern standards. Today there is scarcely a water supply system or purification plant in the State which, in its physical equipment, does not conform to the best practice, or which will fail to provide adequate and safe water for many years in the future.

Technically trained men have been secured to operate the filtration plants, and in most cases the State Board of Health has been requested to recommend suitably trained personnel for these positions. Much time has been spent by the district engineers in training the technical and practical plant operators and checking their work. Sixty-four plants, serving a population of 708,629 or 95 per cent of the population served by filtered water supply are operated by specially trained men, usually college graduates, with complete chemical and bacteriological control of the purification processes.

Two hundred and one water supplies of mills and mill villages, having a population of about 90,000 have been investigated, and, where improvements were required, reports with recommendations have been rendered to the industries. These supplies now require greater attention than the more highly developed municipal systems in order to safeguard the health of the people served by them.

2—CERTIFICATION OF WATER SUPPLIES FOR INTERSTATE CARRIERS

Objective: To make sanitary field inspections and laboratory examinations of the water supplies used by railroads and steamship lines engaged in interstate traffic and to report these findings, with recommendations, to the U. S. Public Health Service as the basis for official certification of the sanitary quality and safety of these supplies for drinking and culinary purposes.

Methods: The U. S. Public Health Service is required by federal law to exercise supervision over the sanitary quality of water used by common carriers engaged in interstate traffic and to issue annually certificates as to the safety of such supplies and permissibility of their use. Through a coöperative arrangement with the federal health service dating from 1921, this bureau, in connection with its regular water supply activities, makes thorough investigations and field surveys of the sources and methods of purification of water furnished to interstate carriers, and collects samples for physical, chemical and bacteriological examination by the State Laboratory of Hygiene. On the basis of these field inspections and laboratory results, a report is rendered annually to the Public Health Service for every railroad and steamship watering point in the State, giving complete field and laboratory data and stating whether the supply is considered suitable for full certification, provisional certification, or whether its use should be prohibited. Upon receipt of this report, and reports of government engineers regarding the equipment and methods of handling water and ice at terminals and aboard the carriers, certificates are issued by the Surgeon General, and endorsed by the State Health Officer, for each watering point of all railroads and steamship lines. Where municipal water supplies are used, as is usually the case, the annual report of this bureau is based on several field investigations and at least twelve separate laboratory analyses.

Results: The work accomplished in this activity during the past two years is indicated in the following table:

Items	*For Biennium Ending June 30, 1930.*
Railway water supply investigations	144
Railway supplies approved	128
Railway supplies provisionally approved	10
Railway supplies prohibited	6
Steamship water supply investigations	20
Steamship supplies approved	20

During the past ten years the bureau has effected a great improvement in the interstate carrier supplies, fully equal to that which has been achieved with the municipal supplies. Since the number of watering points has remained practically constant, the figures in the table above represent approximately the number of certifications of each biennium.

3—PUBLIC SEWAGE DISPOSAL CONTROL

Objective: The purposes in this activity are as follows:

(a) The promotion of community sewerage systems for the more effective sanitary disposal of sewage.

(b) The enforcement of the statutes to afford adequate protection of public water supplies against pollution, and the sanitary protection of streams essential to other lawful uses of waterways.

(c) The prevention of wasteful expenditure for systems of sewage treatment unsuitable for affording the necessary degree of stream protection, or for plants providing a degree of treatment in excess of essential requirements.

(d) Coöperative supervision of the operation of sewage treatment plants to secure their most efficient and economical performance.

(e) The guidance of municipalities and others responsible for the installation of sewage treatment works, in the adoption of the most suitable and most economical systems.

Methods: In 1909 the General Assembly enacted legislation requiring that all plans and specifications for sewerage and sewage treatment plant installations be filed with and approved by the State Board of Health, and authorized the Board to pass and enforce necessary rules and regulations for the sanitation of streams and the protection of sources of public water supply. Owing to the lack of engineering personnel which precluded field work, this activity was limited almost entirely to the enactment of regulations and review of engineers' plans until 1921, when an additional engineer on the staff made possible field surveys of the existing sewerage works of the State. However, with the policy that the immediate improvement of public water supplies was of paramount public health importance, and with very limited assistance, the bureau devoted its major attention for the next five years to protection of water supplies and betterment of the facilities and operation of plants. New sewerage systems were encouraged and promoted through the sanitary privy work, but little attention could be given to sewage treatment plants except in cases where the protection of water supply sources demanded it. In 1926, with the water supply improvement program well advanced, and with additional personnel, active field work was begun on stream investigations to determine the source and amounts of pollution and to assemble data on which sewage treatment policies and requirements could be based. With such information in hand, a general program of sewage treatment improvement was instituted, with the same general objectives of extension of service, construction of new plants, rehabilitation of existing plants and improvement in operation that had been so successfully accomplished in the public water supply division.

The promotion of more extensive sewerage service, like the promotion of more widespread water supply, is done principally through the sanitary inspection activities.

The enforcement of the laws relating to sewage disposal is effected through the official approval of plans and the strict vigilance of all divisions of the bureau.

Through stream pollution studies, and the study of the efficiency of existing works, the degree of treatment necessary to prevent objectionable pollution of the streams, present and future, is determined. Suitable types and units of treatment works to accomplish the essential degree of removal of pollutional materials are then recommended for installation in each case. No more than the absolute essentials are required.

In sewage treatment, proper scientifically controlled operation is essential to economy as well as to the attainment of the degree of efficiency for which plants are designed. The stimulation of trained operation and close supervision and instruction of local plant operators by the expert personnel of the bureau is therefore both an obligation and an invaluable service to the municipalities.

Ability to guide municipalities in the selection of proper types of treatment, and to so advise their designing engineers, is largely dependent upon the information gained in the study, supervision and observation of plants in service. While the bureau has to function in this capacity as a law enforcement agency, the motive of service is held paramount. The bureau would be as remiss in requiring, through inadequate knowledge of the problems involved, a greater expenditure for sewage treatment than the conditions warrant, or allowing such practice without protest, as it would be in failing to protect the public interest by enforcing adequate sewage treatment protection.

Results: With the water purification plants in the State brought up to a high state of efficiency it has been possible during the biennium to devote more time to sewage treatment. Due to the rapid increase in population of the towns and cities, especially in the Piedmont section, there has been a rapidly increasing demand for effective sewage treatment to relieve the increasing load on streams and public water supply sources. Sewage treatment is much more diverse than water supply treatment in types of plant required and methods of operation, depending upon the climatic conditions, habits of the people, nature of industries, etc. It has been necessary, therefore, to develop information upon which to base selection of types of treatment plants and operating methods that would best suit North Carolina conditions. During recent years the whole practice of sewage treatment has undergone considerable change and it has been necessary to keep in close contact with improved methods and insure their being given consideration in State projects.

With more personnel available for the purpose, additional field equipment, and a well equipped central sewage laboratory, it has been possible to study the nature and quantity of the sewage to be treated and the streams into which it is discharged in detail. This has permitted much more intelligent decision as to the extent of treatment required, the type and capacity of plants, and general equipment to be provided for handling a specific situation. The activated sludge plants at Gastonia, Charlotte (2), and High Point (under construction), the separate sludge digestion—trickling filter plants at High Point, Durham, and Greensboro (under construction), and the Winston-Salem plant are among the most complete, effective, and modern plants in the country.

In order to secure efficient operation of sewage treatment plants the plan has been to superimpose the technical operation and laboratory control upon the laboratory facilities and technical operation provided in nearly all of the towns in the state for the protection of their public water supplies. As in most cases the superintendent of water works is also in charge of the sewerage system, this has worked nicely. Charlotte, Gastonia, High Point, Winston-Salem and Durham have well equipped sewage laboratories and competent technical supervision and such is being provided for the Greensboro plant now nearing completion. In the case of smaller towns where sewage work has to be done by the technical man handling water purification with less personnel available, a less complete control has been possible. For very small installations consisting of simple settling tanks, a partial laboratory control is being developed suited to the needs.

As a basis for improved sewage treatment the Bureau has:

(1) Developed, from study of effective plants now in operation, minimum requirements and limits to serve as a guide for the engineer in design of treatment works and for the Department in passing on plans submitted.

(2) Prepared a bulletin on the operation of sewage treatment works adopted to North Carolina conditions. Methods specified have been tried out at existing plants. This is to serve as a basis for educational work to be done in securing more efficient operation. It is undergoing final revision and will go to printers at an early date.

(3) Prepared and furnished forms for recording data on operation of sewage treatment plants.

(4) Made detailed studies of the nature and quantity of sewage to be treated for the purpose of determining what treatment is required and the adequacy of existing works. In such instances weirs were installed on the outfalls equipped with recording gauges furnished by the Bureau. Coincident with such measurements composite samples of the sewage were taken and submitted to the central laboratory at Raleigh for complete analysis. In several instances 24 separate hourly samples of raw sewage were collected and analyzed. Studies of this nature were made at Henderson, High Point, Raleigh (6 outfalls), Kernersville (2 outfalls), Thomasville (2 outfalls), Liberty, Ashboro, Greensboro (2 outfalls), Winston-Salem, Reidsville, Mocksville, Forest City (2 outfalls), Shelby (2 outfalls), Kings Mountain (2 outfalls), Concord and Mooresville. Measurements in all cases were made over a period of several weeks, and in most cases samples were secured and analyzed from the various treatment units and from the streams into which the sewage or plant effluent was discharged. Such survey permits a report as to the exact problem of treatment, the degree of treatment required and the adequacy of existing works. It also furnishes basis for an effective system of operation.

As work in connection with sewage treatment works requires frequent visits over extended periods, field personnel has been arranged so that the state is divided into districts with a field engineer permanently located in the district where he keeps in constant touch with a group of water supplies and sewage treatment plants. This has greatly facilitated the work on sewage disposal. Upon more pressing conditions reports and recommendations have been made to local officials.

The present status of the extent of sewage disposal is set forth in the following table:

Items	For Biennium Ending June 30					
	1920	1922	1924	1926	1928	1930
Towns with sewer systems	132	137	168	172	176	197
Population so served	592,582	600,000	725,000	785,000	853,836	990,339
Per cent total State population	23.2	22.6	26.6	27.4	29.0	31.2
Per cent population of incorporated places	81.1	78.0	90 3	91.7	95.7	101.3
Number systems disposal by dilution					103	116
Population so served					482,450	481,687
Number systems septic tanks					43	50
Population so served					85,200	103,093
Number systems septic tanks and sand filters					6	6
Population so served					8,486	9,956
Number systems septic tanks and chlorination					4	4
Population so served					16,500	31,829
Number systems Imhoff tanks					24	24
Population so served					50,500	65,317
Number systems Imhoff tanks and sand filters					6	7
Population so served					15,700	20,237
Number systems Imhoff tanks and trickling filters					6	6
Population so served					15,700	18,087
Number systems activated sludge					2	3
Population so served					78,300	104,353
Number systems separate sludge digestion					1	1
Population so served					4,000	4,086
Number systems separate sludge digestion and trickling filters					1	3
Population so served					25,200	76,422
Number systems direct oxidation					1	1
Population so served					71,800	75,272
Engineers plans submitted for approval	34	16	49	39	64	33
Engineers plans approved	34	15	49	39	48	28
Cost new system and treatment works			1,000,000	1,750,000	2,000,000	2,000,000
Population affected by new works			195,000	131,275	150,000	216,660
Plants with trained operators and complete laboratory control					3	11
Visits to plants for inspection, investigation or training and supervision of operators		8	8	20	200	600

4—SCHOOL WATER SUPPLY AND SEWERAGE ENGINEERING SERVICE

Objective: To improve the sanitation of the public schools of the State through the promotion of adequate water supply, sewerage and sewage disposal facilities, to secure the installation of properly designed and constructed plants to avoid wastage of public money and a false sense of health protection in unsuitable and inefficient works, and to provide adequate maintenance of these sanitary installations.

Methods: The General Assembly of 1919 enacted legislation requiring the provision of adequate excreta disposal facilities for all public schools, these to be constructed and maintained in accordance with the rules and regulations of the State Board of Health. At that time practically all of the rural and village schools were provided with water from unprotected springs or open wells, plumbing fixtures were unknown and the school that could boast an openback surface privy for both sexes was considered modern. The first years of the bureau's work in this activity were devoted to safeguarding the existing water supplies and securing the installation of sanitary earth-pit privies. About 1924 there began the great consolidated school movement, resulting in the abandonment of thousands of small antiquated and wretched school plants and the construction of hundreds of large consolidated schools with modern buildings, running water, adequate heating and ventilating equipment, plumbing and water carriage of excreta. But it was found that the school officials either gave no attention to the matter of sewage disposal or innocently permitted the costly installation of commercial or other forms of sewage treatment equipment, without regard to the requirements of the situation, that were entirely inadequate, and often worse than worthless in the danger to the community health which their use entailed.

These projects were too small to interest engineers capable of designing suitable plants without unreasonable cost for engineering service in proportion to the cost of actual plant construction. Realizing this situation and the necessity for competent engineering design and supervision on the hundreds of projected plants, the State Board of Health in 1925 set up the machinery for furnishing this essential service, and effected an agreement with the State Department of Public Instruction whereby the bureau was to be informed of all new school projects and no contract let for school improvements that did not provide for safe and adequate water supply and sewage treatment facilities. The coöperation of county superintendents of schools was enlisted in this program, and the entire State covered for purposes of making a survey of existing school plants and making contacts with school officials. On the whole, school officials have appreciated the value of this service and have taken full advantage of it, but there are yet several counties in which no thought is apparently given to sanitary facilities in planning on budgeting school projects. In these localities it is only through the diligence of the sanitary inspection force that proper water and sewage treatment works are provided.

For three years this work was carried on by a field engineer devoting practically all of his time to it, assisted by the sanitary inspection division in making such preliminary investigations and subsequent inspection of the work as were found necessary. Through the coöperation of school officials and the adoption of standard plans and technique, the administration of the work has been simplified to an extent that, during this biennium, the work has been handled by the office engineers and the field sanitary inspectors.

When a school plant is to be built or improved a preliminary investigation is made by the sanitary inspector in whose area the school is located, for determining the type of water supply, sewerage system or sewage treatment devices required, or most suitable, for the local conditions. A report covering all features of the situation is sent to the bureau office, where it is reviewed and standard plans and specifications for the necessary units prepared and forwarded to the proper school officials and the sanitary inspector. Assistance to the school authorities or architect in letting the contract is furnished if requested. During the course of construction each project is inspected as often as necessary to insure compliance with the plans and specifications. After the completion of the work a final inspection is made and an official approval of the installation is furnished. Assistance of any character is furnished to school officials, engineers, architects, contractors, or other interested persons that may be constructive in promoting sanitary school conditions and economical installation of adequate and permanent sanitary facilities.

Close attention is given to the operation and maintenance of these utilities after installation. Local school boards and custodians are instructed in the functions and upkeep of the plants, and a series of lectures on the subject are given in the short course for school janitors conducted annually by State College. Inspections are made to determine the condition of the systems and suggestions furnished for improved operation and maintenance. In several counties, at the request of school officials, annual surveys are made of all schools in the county and reports rendered for their guidance.

Results: An idea of the scope and magnitude of this work, the diversity of design, territory served, cost of construction and savings effected by this bureau can be seen from the following table:

Items	*For Biennium Ending June 30.*	
	1928	*1930*
Counties covered by personal contact	95	44
Water supplies inspected	300	200
Septic tank installations	45	11
Septic tank and sand filter installations	85	55
Septic tank and nitrification bed installations	170	34
School population served by new sewage treatment works	110,000	39,875
Preliminary investigations, progress and final inspections of water supply and sewage treatment works	600	250
Total cost of work supervised	$600,000	$275,000
Value of engineering services performed thereon	60,000	27,500
Savings effected for counties by elimination of proposed inadequate plants	150,000	50,000
Gross saving to counties	$210,000	$77,500
Departmental cost of service	3,458	1,000
Net saving to counties	$206,542	$76,500

The two most outstanding benefits as a result of this activity are: (a) The improvement of sanitary facilities of the consolidated schools in almost every county in the State through the elimination of existing insanitary and unsatisfactory water supplies and sewage disposal facilities, and (b) The prevention of the installation of unsafe and inadequate facilities at new schools, which is significant not only from the sanitary standpoint but also from the standpoint of economy.

It would have been necessary to abandon the proposed inadequate plants in a short time and replace them by installations of proper design and construction, thereby increasing the ultimate cost by the amount of the original construction. By intercepting the faulty and dangerous designs and substituting approved plants this additional cost has been eliminated.

More important than any economic considerations is the increased but intangible health protection afforded to the population of communities in which the schools are located and to the school population of the State.

5—STREAM POLLUTION SURVEYS

Objective: The objective of this activity is to obtain such information as will permit the development of wise constructive state policies concerning the uses of the streams, through such studies of streams of the State, particularly those into which large quantities of sewage and industrial wastes are discharged, as to determine:

(a) Safe capacity of streams for assimilation and destruction by natural processes of sewage and other waste materials.

(b) The pollution loading on water purification plants protecting public water supplies.

(c) Location of points of gross stream pollution as a basis for preventive measures against the production of nuisance or menace to health.

By means of the foregoing, together with information secured from studies of sewage and industrial wastes discharged into the streams, it is hoped to establish safe public control policies in these matters, sufficiently based upon the facts of scientific information obtained as to most equitably administer the statutes with respect to the sanitary use of streams both as a source of water supply and as natural and essential channels for the disposal of sewage and all waste materials.

With such information in hand the objective is to so establish the requirements of each case as to fully conserve the interests of the public in public water supply protection, the conservation of fish life and other public interests in the sanitary conditions of streams, and at the same time avoid unfair and unnecessary burden upon municipalities and industries discharging sewage and other wastes into streams, in the cost of unsuitable or excessive treatment measures.

It is hoped also that with actual data available as to the condition of streams, civil suits against cities and industries for alleged damages from the pollution of streams and for nuisance conditions, may be settled on the basis of sound scientific facts and with minimum of prejudice.

Methods: The first broad scale stream study was undertaken by the bureau in 1926 on the Neuse River. In view of statutes charging the Conservation Commission with the control of streams as affects fish life there was developed in 1927 a plan of coördination of the interests and activities of the two departments through a committee representing the two agencies known as the "Stream Sanitation and Conservation Committee."

Under this agreement, regardless of the problem involved, the State Board of Health conducts all work on the chemical and bacteriological condition of the streams, the nature and quantity of sewage and wastes discharged, and the treatment works designed to protect the streams. On the other hand the Department of Conservation and Development contributes all stream flow and other hydraulic data, stream maps, and studies on fish life and food for same.

Facts as to stream pollution are arrived at by two methods. In the first case measurement is made of the quantity and chemical components of all sewage and industrial wastes discharged into the stream at all points and with known normal and drought flows of the stream the pollution concentration may be estimated. In the second instance samples are taken from the stream under known flow conditions and analyzed in the laboratory. In all detailed stream pollution studies both methods are utilized.

As a basis for all stream pollution work, maps were prepared showing streams, both with county as the unit and later by river system of section of same. On these maps are located all sewage and waste outfalls as well as public water supply intakes. Suitable symbols differentiate between municipal and mill and mill village outfalls, and show those carrying domestic sewage alone, industrial wastes alone or a mixture. Each symbol carries a reference number to data covering the particular outfall. Such data includes sewage population connected to the outfall from which sewage solids may be estimated, and details as to nature and quantity of industrial wastes. Thus there is shown points on streams where excessive pollution occurs and the extent of pollution in relation to water supplies and possible nuisance conditions. These stream pollution maps have been prepared for Wilkes, Yadkin, Forsyth, Burke, McDowell, Caldwell, Alexander, Iredell, Catawba, Davie, Rowan, Davidson, Cabarrus, Stanly, Union, Anson, Richmond, Lincoln, Gaston, Mecklenburg, Cleveland, Rutherford, Polk, Haywood, Buncombe, Henderson, Jackson, Transylvania, Cherokee and Alamance. These counties represent the area in the State where most of the industrial wastes are discharged and where the more serious cases of excessive stream pollution have occurred. There is included most of the drainage basin of the Catawba, Yadkin and French Broad rivers. All intakes and outfalls have been located with sewage populations and preliminary information on industrial wastes. The work included under Industrial Wastes Division will serve to complete this.

In addition to the collection and preparation of this data the following special stream investigations were carried on:

Pigeon River: This work was undertaken under an agreement between the Stream Sanitation and Conservation Committee and the paper mills operating in the State. Complaints were received regarding the wastes from the mill of the Champion Fibre Company discharged into Pigeon River. Laboratory facilities and personnel were furnished by the Champion Fibre Company. One engineer from the State Board of Health was engaged on this work and the Tuckaseegee River below the Sylva Paper Board Company for five months and a second engineer for two months of this period. All of the stream work in connection with this project was done by the State Board of Health personnel, while the waste work was done in coöperation with the mill personnel. The Pigeon River was studied and sampled from Canton to Newport, Tenn. The Tennessee State Board of Health also established a laboratory at Newport and made studies concurrently and coöperatively within their borders. More than 100 stream samples were examined in this connection, in addition to waste samples at the mill. Gauging stations were established and flow data including velocities were collected by the Department of Conservation and Development. The object of this work was to establish the extent of pollution of the Pigeon River and its effect and to coöperate with the Champion Fibre Company in working out the problem. A report was made to the Paper Waste Committee covering the work. In addition this work was made use of to establish procedures and technique for stream pollution work in general.

Tuckaseegee River: This study was in connection with complaints of wastes from Sylva Paper Board Company and Sylva Tannery discharged into the river at Sylva. This work was carried out under a similar arrangement as with Pigeon River study and part of it coincidentally with it. The Sylva Paper Board Company furnished laboratory facilities and personnel. The State Board of Health assigned one engineer for approximately two and one-half months on this work, with two engineers for part of this period. Approximately 100 stream samples were examined in this connection and the stream studied from Sylva to the intersection with Little Tennessee at Bushnell, in addition samples of waste were examined. The Conservation Department supplied stream flow data as before and a special investigation of fish life and fish food in the stream. A report was prepared covering the work.

French Broad: This study was carried out by Stream Sanitation and Conservation Committee in coöperation with the Asheville City Engineer and Buncombe County Engineer. The French Broad River was studied from Henderson County line to Hot Springs and about 115 samples were collected and examined in Asheville City Laboratory. The study also included Hominy Creek from Enka to its mouth and Swannanoa River from Sayles Bleachery to its junction with the French Board. Approximately six weeks was spent on this work. The purpose of the study was to investigate complaints of dangerous pollution alleged by citizens of Asheville.

Haw River: This study was in connection with the pollution of North Buffalo Creek and South Buffalo Creek, tributaries of the Haw by sewage and industrial wastes from Greensboro and vicinity. The two creeks were studied from their source as well as Reedy Fork Creek and the Haw River to Burlington. Fifty to sixty samples were collected and examined in field in addition to samples of industrial wastes. Two engineers were on this work for more than two months.

In addition to these extensive stream study projects, the tributary stream into which the municipal sewage is discharged was studied in connection with work on the municipal sewage treatment plants at the following plants: Winston-Salem, Salem Creek to Yadkin River; Charlotte, Sugar Creek and Irvin Creek from source to below sewage treatment plants; Raleigh, Crabtree Creek to Neuse River; High Point, Mooresville, Liberty, Mocksville, Reidsville, Henderson, Forest City, Kings Mountain, Shelby, Thomasville, Concord, Gastonia, etc.

In the case of Gastonia an engineer was assigned to the stream study for approximately a month, and all laboratory work (approximately 50 samples) was done in the field. Approximately two weeks were spent on the streams at Charlotte and laboratory work done in the field on sixty to seventy samples. In other cases samples were collected and shipped to Raleigh laboratory for analysis.

This activity as well as Industrial Wastes Investigations, two of the most important activities covered in this report, both from the standpoint of preservation of the present and future public health interests of the state as well as the sane, well-ordered industrial and municipal development of the state have temporarily been practically completely abandoned due to reduction of appropriation.

The public health and economic interests of the state constitute these as activities for which provision should, without fail, be made not only for continuation but for materially increased activity, in order to cope properly with these rapidly growing state problems.

6—INDUSTRIAL WASTES INVESTIGATIONS

Objective: Such studies of industrial wastes as will determine: (a) The character and extent of wastes from different industrial processes. (b) The effect that these wastes have in connection with the usual processes of sewage treatment when combined with sanitary sewage. (c) The probable effect upon the stream into which they may be discharged. (d) How to dispose of industrial wastes in a manner to protect the interests of all users of the stream into which they are discharged, and to accomplish this result with greatest possible economy.

A knowledge of industrial wastes is essential in carrying out the objectives of the work on stream pollution and municipal sewage disposal. A large majority of the municipal sewage outfalls in the State carry varying amounts of industrial wastes, so that the disposal of domestic sewage necessarily must take into consideration the question of the treatment of industrial wastes.

Methods: Industrial wastes in North Carolina are derived almost entirely from (a) paper mills, (b) tanneries, and (c) textile manufacturing plants.

By a coöperative agreement between the paper mills in the State and stream Sanitation and Conservation Committee two of the three mills equipped themselves with laboratory facilities for examination of their wastes and assigned personnel for the purpose. Personnel of the State Board of Health was assigned to get the work started, instruct the plant personnel in methods, applicable to such studies and to coöperate with a view to uniformity of technique, etc.

As the tannery manufacturers in other states had already conducted extensive studies in other states (notably Pennsylvania) and the North Carolina tanneries were mostly subsidiary to the companies concerned in these studies, advantage was taken of the information available. Tannery wastes from sole and belting leather plants, the only type found in the state, do not differ materially from one plant and another, and the quantity and nature of wastes had been established from a standard tannery for a given number of hides capacity, it was only necessary to determine capacity and check processes against standard tannery to arrive at wastes from each plant.

As there are several hundred textile plants in North Carolina involving most every kind of textile process and producing most every type of textile waste, this constitutes the major industrial waste problems of the State. Whereas in the case of tannery and paper mill wastes considerable work has been done by other states and the information gained available practically nothing has been done on textile wastes and a complete study of the problem is demanded. The method followed has been to go into the mills and collect samples from all the various types of dying, finishing and bleaching processes, measure the pounds of good and volume of waste produced, as represented by the sample, and study each process as related to stream pollution or methods of disposal. Having established the volume and nature of waste per hundred pounds of goods treated, it will be possible to estimate wastes from any mill or at any part of discharge by simply learning process used and goods treated.

In all industrial waste studies effort is made to secure the coöperation of the mills and actual work by their own personnel as far as possible.

Results: *Tannery Wastes:* Nine tanneries were surveyed and their processes studied in relation to the standard tannery. In three of these samples were collected and complete analysis made on 56 samples. Information is available to estimate tannery wastes discharged at the various plants.

Paper Mill Wastes: Supplementing a study of several weeks in the biennium 1926-1928 on the wastes from the Halifax Paper Company at Roanoke Rapids, extensive studies have been carried on during the present biennium on wastes from the Champion Fibre Company plant at Canton and Sylva Paper Board Company plant at Sylva. The Champion Fibre Company utilizes the sulphite, sulphate and soda processes; the Halifax Paper Company the sulphate process only; and Sylva Paper Board Company a special process converting chestnut chip from a tanning extract into paper board. Three months time was diverted exclusively to the study of wastes from the Champion Fibre plant and stream effected by the State Board of Health in Fall of 1928. During this period one engineer was assigned for the first half and two engineers for the latter half. In addition to studying specifically the wastes from this mill their time was employed there in developing standard laboratory technique and procedures for the industrial waste work in the state in general. During the summer of 1929 two engineers were engaged for one month and one engineer for one month jointly on wastes from the Champion Fibre Company and those from Sylva Paper Board Company and streams affected. Approximately 250 samples were examined in the plant laboratories during these periods. In addition, from August 1929 to the end of biennium the Champion Fibre Company carried on a routine study of their wastes with their own personnel with occasional contacts from the State Board of Health. About 300 samples were examined in this way. Very definite information as to the paper mill wastes in the state is thus available.

Textile Wastes: Wastes from 58 textile plants have been studied during the biennium. In the different mills each process has been studied, wastes sampled and analyzed and quantity of waste and goods represented, measured. Approximately 650 samples have been collected by field personnel in this way, shipped in iced containers, and analyzed in the Raleigh laboratory of the Bureau. In addition the city of Greensbor and the Cone group of mills in that city contributed sufficient funds to equip a laboratory in the Cone Plant and to employ a chemist and helper for the analysis of all of their different wastes. This work was supervised by the engineers of the State Board of Health. About 600 samples were analyzed; all wastes were measured by meters, weirs or other means; and the quantities of goods treated as represented by each sample, were determined. In addition to this work about 60 samples were examined by personnel of the State Board of Health as a preliminary survey of the textile wastes in the vicinity of Greensboro.

As a result of this work data is available on the quantity and characteristics of wastes from practically all of the textile processes used in North Carolina referred to a unit basis of quantity of goods treated. This data is now being worked up into a manual by means of which textile wastes and their characteristics may be estimated for any particular plant or outfall.

With a complete knowledge of the nature and amount of industrial wastes, effort is being directed towards coöperation with the manufacturers, municipalities and their engineers in finding the most satisfactory and economical methods of treating their wastes for the protection of streams.

Sources of industrial wastes investigated	72
Samples of wastes collected for analysis	2016
Waste analyses in field	1210

Methods of treatment and disposal of tannery wastes are being studied elsewhere as above indicated.

The paper industry has extensive waste treatment studies underway on a natural basis. As respects North Carolina paper mills the Halifax paper company has solved their waste problem sufficiently to meet the present needs and has other correctional measures in prospect. The Champion Fibre Company has research chemists assigned to studies of possible treatment or other measures of correction. The Meade Company, owners of the Sylva Paper Board Plant, has a research organization attempting to work out means of treatment or reduction of wastes. We are reliably informed that this company has spent over $100,000 in efforts to solve the waste problem.

In the matter of textile wastes, research and experimental work on hosiery mill wastes has been carried out by the University, financed by the city of Durham at the instance of this bureau. Similar studies were made by the city of High Point and were used in the design of plant to treat the city sewage combined with large quantities of hosiery mill wastes. Experience with treatment of hosiery mill wastes combined with sewage indicate that with adequate allowance for wastes in the design of treatment the wastes can be satisfactorily treated with domestic sewage except for color removal.

There are a large group of other textile wastes which the above outlined studies indicate to be of immensely greater concentration than hosiery mill wastes, particularly with respect to color. It is apparent that extensive research and experimentation should be done on the treatment of these wastes before engineers can safely design sewage treatment plants for treating sewage combined with any considerable quantity of these wastes.

Acting as an agency of the stream Sanitation and Conservation Committee this bureau secured the interest of the chemical foundation, an agency interested in promoting chemical research. Representatives of the Chemical Foundation, the University, interested industries and cities, and of the State Board of Health and Department of Conservation and Development were brought together in a conference to work out a plan of research, based upon the studies made by this bureau in determining the characteristics and normal quantities of the various wastes. This group developed a programme of research to be carried out by the University and proposed that it be financed jointly by the Textile Industry and the Chemical Foundation. The North Carolina Textile Manufacturers Association, at its meeting in June endorsed the programme and directed that a committee raise $5,000.00 from among the colored goods manufacturers. Due to the depression in the textile industry the committee has not yet raised the amount specified, and consequently the plan has not yet been put into execution.

If the waterways of North Carolina are to be preserved in a condition suitable for sources of water supply and other public uses, and if the textile industry is, at the same time to survive, economically practicable methods of treatment of textile wastes, such as the above outlined programme is designed to develop, must be determined.

There is no precedent or source to turn to for this solution, but to North Carolina itself.

The statement "if the textile industry is at the same time to survive" is made advisedly because the margin on which this industry now operates is so small that unless methods of treatment within reasonable economic range are devised, the small margin of profit will be more than absorbed in treatment cost. It is a responsibility of the State therefore to aid in the economic solution of the textile wastes treatment problem.

7—CENTRAL SEWAGE AND INDUSTRIAL WASTES LABORATORY

Objective: To provide a permanent, centralized laboratory service, operating in conjunction with the field investigations, to afford accurate and complete analytical data on the physical, chemical and biological characteristics of the sewages and industrial wastes discharged into the streams of the State, to determine the sanitary condition of the waterways and the capacity of the streams for the assimilation of these waste materials, to devise suitable methods of treatment for various domestic and industrial wastes and choose intelligently the processes best suited to any particular situation for the protection of stream quality, to check the efficiency of operating plants, and, upon the basis of such scientific information, to establish safe policies for the administration of the statutes governing the sanitary uses of streams.

Methods: Realizing the very rapid municipal and industrial growth of the State with its attendant problems of water supply and stream protection the bureau recognized the necessity for fundamental information upon these matters and in 1926 began extensive scientific stream pollution surveys and investigations on the quantities and pollutional characteristics of sewage and wastes discharged into the waterways together with studies of suitable treatment processes. In the execution of this program it was found that a well equipped central laboratory was indispensable, as the necessary tests could not be conducted by a portable labortory in the field, nor were the available municipal plant laboratories equipped for this very technical and highly specialized type of work. Since 1926, the central laboratory has been established in the bureau offices and conducted by specially trained analysts, who work in coöperation with the field engineers an develop schedules for submission of samples which equalize the load and utilizes the full efficiency of the organization. Samples collected by the field men are expressed to the laboratory in special ice containers which prevent any deterioration. This system insures absolute standardization of laboratory practice and consistent results, so necessary in this type of work which could not obtain if several laboratories, with different equipment and reagents, were used by several analysts employing different methods and technique.

In addition to providing analytical service for strictly investigative work, it has been found possible to assist the municipal laboratories in special problems of operation control where more elaborate equipment and technique is required than is warranted by the routine activities of such local laboratories. Service has also been rendered to small municipalities in connection with sewage and waste treatment, where laboratory facilities are not practicable.

The central laboratory also makes physical and chemical analyses of all sand used in the water and sewage filters of the State to determine its suitability and acceptability for such use.

Results: The following table indicates the work of the laboratory for the past biennium.

Municipal sewage samples analyzed	353
Unit cost for sewage analyses	$2.21
Industrial waste samples analyzed	637
Unit cost for waste analyses	$2.01
Stream samples analyzed	272
Unit cost for stream analyses	$1.08
Analyses of sand for water and sewage filters	53
Unit cost for sand analyses	$1.44

8—STATE INSTITUTION ENGINEERING SERVICE

Objective: To utilize to the fullest possible extent the personnel and facilities of the Bureau of Sanitary Engineering in handling the water supply and sewage disposal engineering problems of the State's institutions.

Methods: The General Assembly of 1879 authorized the State Board of Health to act as special advisers to the State in regard to the location, sanitary construction and management of all State institutions.

With the recent rapid expansion of the physical plants of the State institutions a condition which has existed for many years was brought forcibly to the attention of this department and the Budget Bureau. The water supply and sewage disposal projects of these institutions are usually too small to interest the qualified and capable engineers who engage in this highly specialized branch of the profession. As a result, the design and construction of the sanitary facilities have innocently been entrusted to the architect who designed the buildings, to an incompetent engineer, plumber, commercial firm or contractor, who knew nothing of the principles or practice of sanitary water supply and sewage treatment, and who were too often unscrupulous and took advantage of the innocence or ignorance of institution officials regarding such matters. Not only have many thousand dollars of State funds been wasted on such enterprises, but unsafe and utterly inadequate works have resulted which provided a false sense of security.

In 1926 the Director of the Budget issued a memorandum directing that in the future no institutional water supply or sewage disposal project would be authorized or constructed without a thorough going investigation and approval by the State Board of Health. Beginning in 1927 the Budget Bureau has requested the Chief Engineer to accompany the Advisory Budget Commission on their annual visits to all of the thirty-six institutions and advise that body and the Budget Bureau as to sanitary requirements and funds required for necessary improvements. After several harrowing experiences with incompetent engineering services and inadequately supervised contractors on construction, the policy of utilizing the services of the specially trained personnel of this bureau for design and supervision of construction of new water supply and sewerage improvements was adopted. By this arrangement it is possible to study the requirements of the institutions and to plan their sanitary works in such a way as to effect economy, secure orderly development of the utilities and provide in time for future demands. In practically all cases the recommended improvements have been authorized.

The full time of one engineer, who serves as designer and resident engineer on construction, and the major part of the time of another engineer, who inspects and studies the water supply and sewerage problems of the institutions, in connection with his other duties, prepares cost estimates and specifications, lets contracts, handles correspondence and contracts and exercises general supervision, are devoted to this activity while such projects are in progress. At the present time a third temporary engineer is devoting full time to the supervision of construction of a project.

Proper operation and maintenance of the plants are secured by frequent inspections of these utilities at each institution, with constructive advice and recommendations to the institution superintendents and assistance to the operating personnel. Every effort is made to encourage the employment of trained operators, where the size of the institution justifies it, and in the case of the smaller plants, to instruct and train existing personnel in their duties.

Results: During the three years of active work in this enterprise a great improvement in sanitary conditions has resulted in practically every State institution having privately-owned water supply or sewage treatment plants.

Improved operation of these plants has been obtained. In some cases the improvement in operation has been sufficient to eliminate the necessity of a new installation, which otherwise would have been required. In several plants the employment of specially trained and experienced men has been secured. Often by combining the supervision of the power, heating water supply and sewage treatment plants under one head a salary can be offered which will attract a trained and capable man, and the actual saving so effected is usually much more than the entire cost of the service. At the suggestion of this bureau, and as a demonstration of economic possibilities, a trained engineer was recently employed to assume charge of the water and power plants and other utilities of one of the larger institutions. A saving of $8,000 is being effected in fuel consumption in the first year of service.

A considerable saving to the State has been effected through elimination of necessarily high engineering fees for these small projects, by strict supervision of contractors in those cases where engineering services would not have been obtained, by correction of incompetent engineers' designs and by consideration of the future expansion of the institution as well as its immediate needs. In several cases the latter service has resulted in a considerable saving by preventing the installation of inadequate plants that would have been abandoned in a short time.

The following table will serve to indicate the scope of this activity and the savings effected for the State:

STATE INSTITUTION WATER SUPPLY AND SEWAGE DISPOSAL ENGINEERING SERVICE

(Activity Instituted 1925)

	For Biennium Ending June 30		
	1926	1928	1930
Institutional water supply investigations	----------	210	247
Institutional Sewerage facilities investigations	----------	62	73
Number water supply projects designed and supervised	----------	----------	4
Number sewerage and sewage treatment plant projects designed and supervised	----------	----------	5
Total cost of work designed and supervised	----------	$65,700	$62,333.13
Number projects surveyed, designed and estimated for future construction	----------	----------	5
Estimated cost of projects designed but not yet constructed	----------	----------	69,206.00
Total cost of projects completed, process of construction or funds appropriated for	----------	----------	131,539.13
Correction of Engineer's Design to one of less expensive design	----------	12,000	----------
Curtailing activities of incompetent contractor	----------	2,000	----------
Elimination of contractor's profit by use of institutional or municipal labor	----------	400	2,215.00
Engineering fees saved to institutions	----------	5,600	3,897.07
Amount saved by transfer of equipment	----------	----------	950.00
Gross savings	----------	20,000	7,062.07
Departmental cost of supervision	----------	1,080	251.00
Net saving to State Institutions	----------	18,920	6,811.07

9—MINERAL WATER ANALYSES

Objective: To determine the physical and dissolved mineral characteristics of the natural waters of the State, as a service to the State Department of Conservation and Development.

Methods: It is one of the duties of the Department of Conservation and Development to collect and disseminate information relating to the quality of the surface and underground waters of the State insofar as fish life and industrial use of water are concerned, and to conserve and maintain these waters in a suitable condition for such uses. For a number of years this organization has been building up a store of data on this subject by collecting samples of waters from all parts of the State and subjecting them to complete mineral analysis. Bulletins have been published from time to time giving the cumulative results of these investigations, and with the rapid industrialization of this region in the last few years there have come numerous and insistent requests for this information.

Formerly the mineral analyses were made by private individuals or commercial chemists under contract with the Department of Conservation and Development. This service was not entirely satisfactory, due often to long delays between collection and examination, lack of observance of standard technique, and discordance of results. Besides, the cost was disproportionate to the services rendered. In accordance with the general policy of the State administration to avoid duplication of facilities, personnel and effort by having each department of the State Government perform the functions that it is best qualified and fitted to do, and serve other departments which are in need of similar service, an agreement was worked out in 1928 between the State Board of Health and the Department of Conservation and Development whereby this bureau should act as a service organization to the Department of Conservation in taking over all of the mineral analysis work in return for mapping and other established services in which the Conservation Department is engaged. The Bureau of Engineering, already operating a fully equipped laboratory for water, sewage and waste analyses, was able to assume this activity with established personnel and at less cost than it could otherwise be handled, with highly trained and skilled technicians and with standardized methods and equipment, correct and consistent results could be obtained.

Samples are collected on a regular schedule by the field force of the Conservation Department and expressed to the central laboratory, where they are handled without delay. This schedule is prearranged so as to balance the load of the analysts and to cause a minimum of inconvenience in the conduct of the regular work of the laboratory.

Results: During this biennium the central laboratory has conducted 60 complete mineral analyses, at a cost of $14.72 per sample. Eighteen man-hours is required for each complete determination.

10—CHEMICAL AND BACTERIOLOGICAL EXAMINATION OF PUBLIC WATER SUPPLIES

Objective: To determine the sanitary quality of all of the public and commercial water supplies of the State by periodic physical, chemical and bacteriological examination.

Methods: As early as 1879 the General Assembly enacted legislation requiring the chemical examination of all public water supplies as a safeguard to their sanitary quality. Following the discovery of the germ transmission of disease and the development of the science of bacteriology, the Board, in 1896, adopted regulations requiring periodic chemical and bacteriological analyses of public supplies. These examinations were made under contract in private laboratories, and by cooperative arrangement with the State Department of Agriculture, until the establishment of the State Laboratory of Hygiene as a division of the Board of Health in 1905, when a legislative act was passed delegating this service to the Laboratory, requiring the submission of samples from all public water supplies at least once a month, and imposing an annual tax of $64 on each supply for this service. This arrangement continued until April 1st, 1929, when, in order to provide a better correlation between laboratory and field work in the control of public water supplies by the consolidation of all of the water supply service of the board and to render the laboratory findings of greater value and application, and with the idea of extending a greater service to the municipalities and industries for their $64 annual tax by providing regular sewage and industrial waste laboratory service without extra cost, the water examination work was transferred to the Bureau of Sanitary Engineering. After three months successful operation the transfer was adjudged illegal by the Attorney General on the ground that the General Assembly of 1929 in transferring the appropriation in the budget act had failed to repeal the 1905 statute requiring regular submission of samples for analysis from all public water supplies and specifically designating the Laboratory of Hygiene as the examining agency. This activity was then transferred back to Laboratory of Hygiene.

All public water supplies, whether publicly or privately owned, as well as all spring or bottled waters offered for sale to the public, are examined physically, chemically and bacteriologically at least once a month to determine their safety and suitability for domestic uses. Samples of private water supplies are examined free of charge provided they are submitted by a public health official or practicing physician. All samples are required to be submitted in sterile containers furnished by the central laboratory. Ice containers are provided for samples from the filtration plants, and for supplies in the remote parts of the State where samples are in transit for more than a few hours.

Results: During the three-month period, from April 1, to July 1, 1929, that this bureau was charged with the routine examination of public water supplies the following results were accomplished:

Public water supply samples examined	789
Private water supply samples examined	631
Unit cost of examinations	$0.63

11—MOSQUITO AND MALARIA CONTROL

Objective: The purposes in this activity are: (a) The determination of the prevalence and geographic distribution of malaria and malaria-bearing mosquitoes, the extent to which the disease is a menace to the health and economic efficiency of the people, and the recommendation of suitable and economic measures for its control; (b) The study of impounded water and its effect upon the prevalence of mosquitoes and the incidence of malaria; (c) The investigation and correction of situations which produce pestiferous mosquitoes, and (d) The survey of salt marsh mosquito-breeding areas con-jointly with the U. S. Public Health Service.

Methods: In 1920 a coöperative agreement was made between the State Board of Health, the International Health Board, The U. S. Public Health Service and several towns in the eastern part of the State and a program launched to demonstrate the possibility and advantage of the eradication of malaria. In 1922 malaria control was undertaken on a county-wide basis in several counties of the coastal plain area, the work being financed jointly by the State, the counties involved, and the International Health Board, the latter organization loaning a member of its field staff for the direction of the work. For the next seven years this activity was continued on the same coöperative basis and under the same direction, the director in the meanwhile being taken by the State Board of Health and made a member of its staff. During this time the work has been administered through the Bureau of County Health work, as a separate unit, and by the Bureau of Epidemiology, emphasis being placed upon mosquito and malaria surveys and the organization and direction of local county health departments in the malaria-infected areas for the control of the disease. In 1927 a biologist was added to the staff and the scope of activity extended to include studies of the many impounded reservoirs of power companies in the piedmont and western sections of the State, and malaria surveys in areas adjacent to proposed impounding developments preliminary to their construction.

On May 1, 1929, the mosquito and malaria control work was transferred to the Bureau of Engineering, the biologist becoming a member of the staff of this bureau. With local health departments in the eastern malarial zones well established and actively engaged in control measures, it was considered by the Board that the present and future problems were principally engineering and biological in nature, and therefore logically within the scope of the Bureau of Sanitary Engineering and Inspection. The biologist left the department in September, 1929, on a year's leave of absence for the purpose of taking graduate work.

The principal work of this activity at present is the study of impounded water projects carried on in the form of surveys in coöperation with power companies and the county health organizations in whose territory the projects are located. General data are collected, consisting of histories of past occurrence of malaria, present malaria conditions as evidenced by history and blood tests, and general environmental conditions which influence mosquito breeding. The territory surveyed is that within a one mile range of the impounded area, this being considered the probable extent of effect from a breeding area. These studies afford an index of the prevalence of malaria, past and present. Also a general mosquito survey of the territory is made to determine the kind and prevalence of mosquitoes. This information is valuable for correlation with existing malaria conditions, for predicting malaria incidence and for comparison with future results. Reports are rendered to local health departments and the municipalities or industries involved with recommendation for dealing with the problem.

Surveys are frequently made of towns, or other local areas, to determine the mosquito and malaria situation and reports rendered with recommendations for correcting remediable conditions.

Results: An account of the mosquito and malaria control activities prior to May 1, 1929, is rendered by the Bureau of Epidemiology and is included elsewhere in this report. Due to the absence on leave of the biologist in charge of this activity since September, 1929, this bureau has conducted the work for only four months of the biennium. During this period most of the time has been consumed in assembling and reporting data from extensive field surveys of impounded water projects previously conducted. During the summer of 1929 surveys were carried on in the towns of Chapel Hill and Fayetteville, on Ocracoke Island and at Cape Hatteras, and reports rendered.

MILK SANITATION DIVISION

Objective: (1) More widespread sanitary regulation of milk supplies by local health agencies.

(2) Development of uniform standards of milk sanitation which will promote its production and consumption through increased public confidence in its safety.

(3) Effective public health protection through the efficient sanitation of municipal milk supplies.

Methods: (1) A standard form of milk sanitation ordinance has been prepared, embodying the best practice in the regulation of milk supplies. This ordinance is furnished to local officials desiring such information. In addition, local officials are assisted in making preliminary surveys, organizing the work of enforcing the ordinance, establishing the necessary laboratory control, advising dairymen and pasteurization plant operators with regard to the most practicable and economical methods of complying with the ordinance and in such other ways as will be of assistance in establishing more widespread and more efficient municipal regulation of local milk supplies.

(2) The same service offered to municipalities for the establishment of new milk control units, as outlined above, is offered to existing units who desire to harmonize their milk sanitation requirements with the standard. All cities are advised to adopt the standard form of milk regulation in the interest of establishing uniform standards of milk sanitation that will be comparable on the same basis for all municipalities. This is done to establish a universal or standard unit of measure as a basis to enable the evaluation of the protection afforded by milk sanitation. Thus more uniformly effective results may be attained, and the public confidence increased in the safety afforded by municipal regulation of the milk supply.

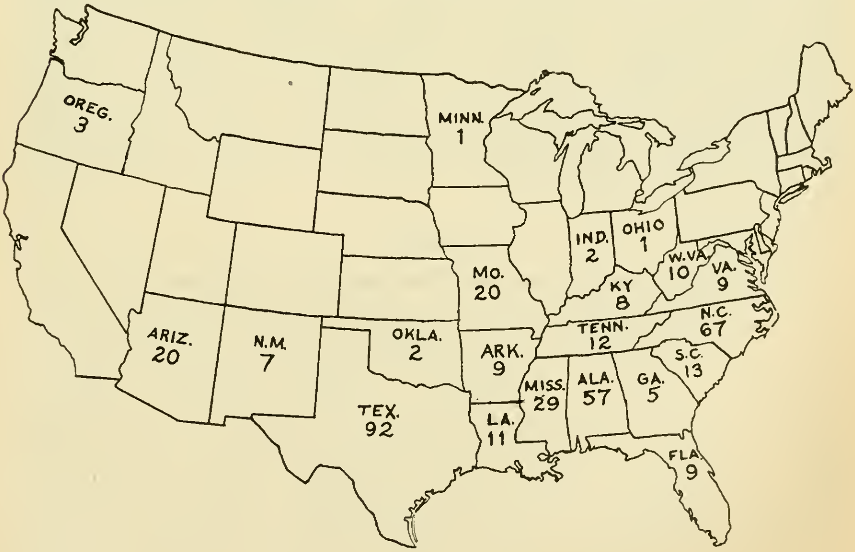
Moreover, in cities having the same standards a temporary shortage in the milk supply of one can be made up from a surplus in another without nullifying the milk sanitation regulation, since these are the same in both places.

(3) The services of the division are available to any city upon request to assist and coöperate with them in the administration of any milk control ordinance under which they may be operating, to the end that public health protection through the sanitation of the milk supply may be extended.

History: The first mention of milk sanitation as an activity of the State Board of Health was made by the Secretary in the meeting of the Executive Committee, December 29, 1923, and again in the Annual Meeting of the Board, April 14, 1924. It was remarked that the cities of the State had long been in need of advisory assistance from the Board of Health with reference to developing and regulating their milk supplies. The Director of the Bureau of Sanitary Inspection and Engineering, which had successfully developed two important city problems—regulation of public water supplies and proper disposal of excreta—was requested to extend this Bureau to include the work of milk regulation. He was further authorized to employ an experienced officer in milk control with assurance of additional funds to the budget of the bureau for the purpose. The work was allocated to this Bureau since it was the division of the Board most concerned with municipal health work. From its inception, therefore, and in the absence of any specific State laws on the subject, milk sanitation has been regarded as a local prerogative and municipal responsibility in which the function of the State Board of Health was one of advisory, coöperative and coördinating leadership.

The period between February 9 and April 14, 1924, was occupied in making a survey of the milk control activities existing in the principal cities of the State, and particularly in making a comparison of the varying requirements of the different milk ordinances encountered. It was found that, at that time, attention was focused on drafting milk ordinances to fit local conditions and personal ideas, and no general agreement had been reached as to the minimum requirements essential for the protection of any milk supply. Occasionally a city had copied the milk ordinance of another city, but always with changes, additions or deletions. Further, the penalty for violations was legal action with fine or revocation of permit to sell, both so drastic as to be seldom invoked, and neither one conducive to good feeling between authorities and producers, and tending to depress rather than promote the consumption of more milk. The accompanying diversity of milk control results demonstrated the absence of a definite aim due to lack of generally accepted minimum standards.

At this time a Standard Milk Ordinance, developed by the U. S. Public Health Service, and successfully applied in Alabama cities for



Standard Milk Ordinance Cities by States.

21 States. June 1930. 387 Cities.

over a year, was studied particularly in relation to its applicability to North Carolina cities. This ordinance established definite requirements for the grading of all milk, and the means necessary for its enforcement. It was found to be logical, reasonable alike to authorities, producers and consumers, practical, and capable of stimulating the production of more high grade milk through the increased demand resulting from a greater public confidence in the safety of the product. Furthermore, its wide adoption would establish recognition of a standard set of minimum requirements, enabling the measurement of accomplishment by comparison of the completeness of compliance with the minimum essentials. Since grading is the essential principle of the Standard Milk Ordinance it was felt that it would give more adequate control over milk supplies than would be possible under laws or ordinances of a less elastic and more compulsory nature. These results were placed before the State Board of Health at its annual meeting, April 14, 1924, and the objectives outlined were: (1) a clean milk as shown by bacteriological standards and proper supervision over dairies and milk plants, and (2) as rapidly as possible as complete pasteurization of public milk supplies as could be brought about.

Results: At first considerable emphasis was placed on increasing the amount of milk pasteurized, but it was soon found that the opposition encountered would defeat the spread of milk sanitation. Observation of many pasteurization plants has demonstrated that they can not be created by legislative fiat with expectancy of always being an economic success, and it was deemed advisable to concentrate upon the improvement of existing milk supplies, letting pasteurization work itself out in accord with public demand and economic conditions. The pasteurization policy has, therefore, become one of encouragement wherever found, but without an aggressive campaign for all of a city's milk supply to be pasteurized. This has resulted in an increase in the number of cities with pasteurization facilities; in the number of successful pasteurization plants; in gallons of pasteurized milk sold; and in the percentage of all milk sold that is pasteurized.

TABLE 1

Total Standard Milk Ordinance Cities Only, As Surveyed Each Year

TOTAL MILK SOLD AND PERCENTAGE SOLD PASTEURIZED

Year	No. of Cities	Total Gallons	% Sold Pasteurized	No. of Cities
1925	10	7,012	----	1
1926	34	20,334	25%	8
1928	44	27,208	27%	12
1929	53	29,851	30%	18
1930	59	32,420	30%	18

There are other large cities not under the Standard Milk Ordinance as yet which have not been surveyed, but which have pasteurization facilities however, the table demonstrates that under the provisions of the Standard Milk Ordinance and under the policy above mentioned, pasteurization is on the increase. The lack of increase in 1930 was due to the addition of a number of cities of the smallest population group which had no pasteurization facilities, and which are too small to make this practicable for some years to come. The Board recognizes that while the safety of raw milk increases as the precautions surrounding its production increase, no milk supply can at all times be safe in its raw state, and that a clean, raw milk properly pasteurized is the safest milk to use. By improving the existing raw milk supplies such a clean raw milk supply is available for pasteurization when in the future economic conditions justify it.

In order to most quickly secure the advantages of the Standard Milk Ordinance for the greatest population, it was first promoted in the larger cities, regardless of whether or not there were existing milk ordinances. The advantages of uniformity of standards were stressed as the main reason for changing an existing ordinance or adoption of the Standard Milk Ordinance. The necessity of milk sanitation was stressed in cities which had no milk ordinance. Out of 59 cities of population 2,500 and over, in 1924, twenty-one had some milk ordinance and thirty-eight had none. By 1930, 17 cities had changed their original milk ordinances for the Standard Milk Ordinance, and 51 cities had adopted it as their first milk ordinance, including many cities in the "Rural" class, with populations of less than 2,500. By securing adoptions of the Standard Milk Ordinance in the larger cities first, their leadership stimulated the recognition and adoption of the ordinance in the cities of smaller population. Shortly after adoption by the larger cities, those in the next lower population groups began to apply for assistance in milk sanitation, and the movement has progressed continuously, until now we are receiving applications from cities of the smallest size. Table 2 summarizes and compares the conditions in 1924 and 1930 for the various population groups. In making the groups we have followed the practice of the U. S. Bureau of the Census. They classify the cities of populations of 2,500 and over as "Urban," and those of less than this number of inhabitants as "Rural." The Rural cities are further differentiated into "Incorporated Rural" and "Rural in Unincorporated Territory."

The successful application of milk sanitation to smaller and smaller cities has been made possible by development of means for providing inspection and laboratory service at a cost which the small city of limited financial means could afford. Larger cities generally provide a full-time inspector, and already have laboratory services with full-time technicians. Smaller cities frequently employ the local veterinarian on part-time as meat and milk inspector, and provide the necessary laboratory equipment for his use. Many smaller cities have provided a chemical and bacteriological laboratory for the daily operative control of their water plants, together with a trained water plant operator. Since this laboratory is suitably equipped for milk analyses as well as for water, double use has been made of the equipment. Many of these water plant operators in small cities have been trained as milk inspectors, and

TABLE-2 Milk Ordinance Status of North Carolina Cities

Local Milk Ordinances in Effect

1924

Population Groups	25,000 and over			10,000 to 25,000			5,000 to 10,000			2,500 to 5,000			Total Urban		
	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total
Local Milk Ordinance in Effect	5	202,364	100.0	10	152 961	93.4	5	36,327	44.9	1	4,749	4.6	21	396,407	72.0
No Milk Ordinance	0		0	1	10,807	66	7	44,554	55.1	30	98,596	95.4	38	153,957	28.0
Total	5	202,364	100.0	11	163,774	100.0	12	80,881	100.0	31	103,345	100.0	59	550,364	100.0

Standard Milk Ordinances and Other Local Milk Ordinances

1930

Population Groups	25,000 and over			10,000 to 25,000			5,000 to 10,000			2,500 to 5,000			Total Urban		
	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total	No. of Cities	Population	% of Total
Changed to Standard Milk Ordinance	5	300,089	71.6	8	115,910	69.7	4	31,708	35.6	0		0	17	447,707	56.8
Adopted Standard as First Milk Ordinance	0		0	3	33,181	20.0	8	51,838	55.0	19	67,687	62.4	30	152,706	19.4
Total Standard Milk Ordinance	5	300,089	71.6	11	149,091	89.7	12	83,546	88.6	19	67,687	62.4	47	600,413	76.2
Other Local Milk Ordinance in Effect	3	119,179	28.4	1	17,094	10.3	0		0	0		0	4	136,273	17.3
Total All Milk Ordinances	8	419,268	100.0	12	166,185	100.0	12	83,546	88.6	19	67,687	62.4	51	736,686	93.5
No Milk Ordinance	0		0	0		0	2	10,734	11.4	13	40,732	37.6	15	51,466	6.5
Total	8	419,268	100.0	12	166,185	100.0	14	94,280	100.0	32	108,419	100.0	66	788,152	100.0

1930

	RURAL									Combined Urban and Rural		
	In Incorporated Places			In Unincorporated Territory			Total Rural					
Changed to Standard Milk Ordinance	0		0	0		0	0		0	17	447,707	14.1
Adopted Standard as First Milk Ordinance	16	31,363	11.7	4	32,546	1.5	20	63,909	2.7	50	216,615	6.9
Total Standard Milk Ordinance	16	31,363	11.7	4	32,546	1.5	20	63,909	2.7	67	664,322	21.0
Other Local Milk Ordinance in Effect	1	1,607	0.6	0		0	1	1,607	0.1	5	137,880	4.3
Total All Milk Ordinances	17	32,970	12.3	4	32,546	1.5	21	65,516	2.8	72	802,202	25.3
No Milk Ordinance		245,740	87.7		2,070,879	98.5		2,316,619	97.2		2,368,085	74.7
Total		278,710	100.0		2,103,425	100.0		2,382,155	100.0		3,170,287	100.0

TABLE 3

Increase in Milk Consumption—Standard Ordinance Cities

Period	Number of Cities	Increase	
		Gallons	Per Cent.
1925-1930	10	4,678	66.7
1926-1930	34	6,775	33.3
1928-1930	44	2,030	7.4
1929-1930	53	1,075	3.6

these cities thus realize a very considerable saving by getting double service from their equipment and personnel. In two instances several adjacent cities have pooled their resources for the purposes of milk sanitation, the entire group being served by one inspector and one laboratory. It is quite possible that the needs of the smallest cities will have to be met by some arrangement of grouping or districting and a per capita tax assessed to enable milk inspections and analyses to be carried out by a State inspector. Experience has demonstrated that full-time personnel is more desirable than part-time, as is true of any branch of public health work, but it has also shown that there is no particular virtue in any one type of educational qualification for a milk inspector. More depends on the personality and intelligence of the individual than on any other factor.

A further advantage of standardization is the periodical comparison made possible of city milk supply ratings. The percentage of the total milk gallonage of each city's supply which complies with each requirement of the ordinance for Grade A milk furnishes the basis for the evaluation of the supplies. Such rating surveys were made in 1926, 1928, 1929 and 1930. With additions to the number of cities surveyed from year to year, it is impossible to compare the rating of every city surveyed in 1930 with its condition in 1926. A comparison has, therefore, been made of each city's 1930 rating, with its initial rating, and the date of that initial rating given.

TABLE 4

Sanitation Ratings of City Milk Supplies

RAW MILK

FIRST RATED IN 1925

	Ratings			Ratings	
	1925	1930		1925	1930
Burlington	41.2	96.3	Rocky Mount	38.1	70.2
Charlotte	57.0	87.9	Salisbury	49.6	95.4
Durham	72.6	99.8	Thomasville	38.3	95.1
Fayetteville	39.9	92.7	Wilson	37.5	68.1
Hickory	39.4	90.9	Washington	38.5	72.6

FIRST RATED IN 1926

	Ratings			Ratings	
	1926	1930		1926	1930
Chapel Hill	92.0	97.1	Lexington	73.0	91.5
Concord	50.0	98.5	Morehead City	39.0	86.3
Goldsboro	98.0	80.3	Mount Airy	66.0	93.2
Greensboro	94.0	93.6	New Bern	73.5	90.1
Greenville	95.0	85.4	Oxford	75.0	94.5
Halifax County	84.0	74.8	Sanford	80.0	98.5
Hamlet	78.0	94.7	Southern Pines	89.0	85.7
Hendersonville	92.0	95.4	Statesville	69.0	96.8
High Point	86.0	96.8	Winston-Salem	75.0	95.3
Kinston	71.0	95.5			

FIRST RATED IN 1928

	Ratings			Ratings	
	1928	1930		1928	1930
Ashboro	76.0	98.6	Leakesville	49.0	61.7
Elizabeth City	82.0	90.3	Lenoir	53.0	97.0
Elkin	66.0	85.1	Reidsville	54.0	94.5
Henderson	43.0	84.8	Whiteville	53.0	75.0

FIRST RATED IN 1929

	Ratings			Ratings	
	1929	1930		1929	1920
Albemarle	73.0	92.0	Kannapolis	84.0	95.4
Carthage	10.0	54.6	Kernersville	84.0	89.4
Clinton	68.0	--------	Lincolnton	71.0	94.7
Granite Falls	42.0	100.0	Newton	37.0	96.8

TABLE 4 (*Continued*)

Sanitation Ratings of City Milk Supplies

RAW MILK

FIRST RATED IN 1930

	Initial	Later		Initial	Later
Brevard	5.3	99.1	Marion	72.1	None
Farmville	42.6	80.6	Monroe	32.6	"
Kings Mountain	28.4	None	Morganton	23.9	"
Lumberton	69.6	97.0	Roxboro	37.1	"

PASTEURIZED MILK

	Raw Milk for Pasteurizing		Pasteurizing Plants	
	Ratings		Ratings	
	1926	1930	1926	1920
Charlotte	48.2	88.4	45.5	77.9
Concord	49.7	98.9	27.0	80.0
Durham	74.3	93.1	92.0	88.0
Greensboro	74.4	85.9	79.0	98.9
Hendersonville	75 1	91.1	71.1	84.0
High Point	77.5	95.8	47.0	89.0
Tarboro	68.0	74.2	50.5	91.0
Winston-Salem	40.0	93.6	62.6	88.9
	1928	1930	1928	1930
Burlington	80.0	93.2	71.0	92.9
Chapel Hill	82.0	92.0	66.0	85.7
Leaksville	62.0	86.0	33.0	74 0
	1929	1930	1929	1930
Lexington	90.0	75.0	66.0	67.0
Salisbury	55.0	86.7	64.0	99.0
Shelby	24.0	None	33.0	None

Recent Adoptions of Standard Milk Ordinance not yet Rated.

Belmont
Bryson City
Forest City

Mount Holly
Red Springs
Spindale

Tryon

SHELLFISH SANITATION DIVISION

Objective: The sanitary protection of shellfish-growing areas and the enforcement of standard regulations of shellfish handling to (a) prevent the spread of disease from the consumption of shellfish grown in polluted water, or from shellfish bearing the germs of contagious disease due to insanitary methods of handling, and (b) aid in stabilizing the North Carolina shellfish industry by establishing the public confidence in the safety of this important food product.

Methods: The shore laboratory at Morehead City is maintained for making routine bacteriological tests of water in shellfish-growing areas, and bacteriological examination of the shellfish from the beds, and as handled in preparation for market. This work is handled by a Sanitary Biologist detailed by the State Board of Health.

Certificates are issued for any growing area conforming to the sanitary requirements as determined by sanitary survey and laboratory examination.

Special certificates are issued to all shuckinghouse operators, and to shell-stock shippers, whose equipment and methods are found by inspection and test to conform to the regulations.

Since the Fisheries Commission offices are most convenient as the headquarters for this activity, these joint Fisheries Commission and State Board of Health certificates are issued from that office.

History: In December, 1924, there were typhoid fever epidemics in Chicago, New York City, and Washington, which were definitely traced to contaminated oysters as the cause. The publicity given aroused apprehension about the safety of shellfish as food, and caused a very marked reduction in the oyster trade in all localities. The financial loss to the industry was large and loss of wages among those dependent on the industry for work caused much suffering. The careful, conscientious oysterman, whose product was taken from safe sources and handled in a clean manner, suffered with the less scrupulous producer who took his product from unsafe sources. To win back public confidence, the leaders in the industry saw the necessity for action on the part of health officials to protect the shellfish-consuming public from the dangers of a contaminated product. Public sentiment had been sufficiently aroused to permit expenditures of public money on shellfish sanitation.

A meeting of health officials and representatives of the oyster industry was held in Washington in February, 1925, at which the Surgeon General of the U. S. Public Health Service was requested to appoint a committee to formulate recommendation for the sanitary control of the shellfish industry of the United States. On this committee were representatives of the health officials and of the commercial interests. The report of the committee, which has become the basis of the present policy of the U. S. Public Health Service in matters relating to shellfish sanitation, gave as the essential requirements for insuring the safety and cleanliness of the marketed product:

(1) That only those should be marketed which have come from beds, which, on careful examination, are found to be free from any justifiable suspicion of dangerous contamination with disease-producing micro-organ-

isms, and free from such other contamination as might be deleterious or offensive.

(2) That subsequent to their removal from the water, all the conditions of handling, storage, and distribution should be such as will adequately safeguard the shellfish from—

(a) Any dangerous contamination with pathogenic organisms; and

(b) Such non-pathogenic contamination, deterioration (spoilage), or adulteration as might render them less fit for food, either hygienically or esthetically.

(3) That thorough epidemiological studies be made of all epidemics where there is ground for any suspicion that shellfish may have been responsible, in order that the sources of infection may be promptly and accurately traced and measures taken to prevent further infections.

Since the States possess the police power to enforce such regulations as are required to protect their own citizens and those of other States from contaminated shellfish, the responsibility for control of the industry continues to rest chiefly upon the individual States, and the requisite coördination and uniformity of control is reached by mutual agreement between the States, with the assistance and coöperation of the U. S. Public Health Service. Each State enacts such regulations and sets up such administrative machinery as necessary, consistent with the minimum requirements of the U. S. Public Health Service. The State agency examines the waters in which shellfish are grown, prohibits the taking of shellfish from waters found to be unsafe, inspects the establishments in which shellfish are prepared for the market, including an examination of the persons engaged in packing and shipping to detect possible typhoid carriers, and issues certificates to those who have complied with the regulations. Copies of these are filed with the Federal agency, which makes check inspections. If they find conditions such as to meet their minimum requirements as to adequate enforcement personnel, efficient administration, and sufficiently stringent requirements, the certificates issued are listed and copies sent to the health authorities in the various States.

Since each shipment of shellfish bears the certificate number of the establishment from which it came, it is readily possible for health authorities in consuming cities to exclude from their markets shellfish shipped by uncertified dealers, and upon their willing coöperation depends the success of the plan.

It is evident that the certification applies only to the source of the oysters and the manner of their packing for shipment at the point of origin, and not to the oysters themselves. No responsibility can be assumed for what may take place between the time the oysters leave the original shipper and time they are purchased by the consumer from the retail dealer. This is because (1) oysters do not generally reach the consumer in the original unbroken package filled at the place of origin, and (2) the oysters may have come from unapproved sources. Examinations of the oysters themselves are best made in the consuming cities for the purpose of eliminating any that may have deteriorated in shipment.

Results: (1) Complete sanitary surveys of the shellfish-growing areas, including bacteriological examinations of the water at numerous points over the areas, have been continued. With the coöperation of the City-County Health Department at Wilmington, a special resurvey of Wrightsville Sound was made in February 1930. Although found to be free from pollution, it was decided to restrict a small area at Wrightsville throughout the year, and to permit the taking of shellfish from the remainder of the Sound according to the existing schedule of dates set by the Fisheries Commission. Further bacteriological examinations of shucked stock and of shell stock (oysters and clams) taken from the beds have shown them to be entirely free from pollution, and demonstrate that the product is produced under safe conditions. This is no doubt due to the efficient patrol maintained, and also to the fact that our restricted areas are extremely small in comparison with our large unpolluted producing grounds. Our sanitary problems are limited largely to questions of "handling" and "personal hygiene" at the shucking houses.

(2) By frequent inspection and educational work, the shucking houses have been made to conform to the sanitary regulations adopted by the State Board of Health and by the Fisheries Commission and approved by the U. S. Public Health Service. All establishments have now been reconstructed and equipped with hot and cold water systems, giving better facilities for cleanliness and sanitation than heretofore. Laboratory and medical examinations of the shuckers resulted in excluding but six out of the five hundred examined.

(3) The execution of these regulations and control measures has protected and established the safety of shellfish from North Carolina waters. Regulations suitable for adoption by municipalities, controlling the handling of shellfish in local markets, have been prepared and adopted by three cities. This is expected to have a strong influence in further guaranteeing the safety of shellfish to North Carolina consumers, and increasing the public confidence in this product.

(4) This program has made possible the continuance of interstate shipments of North Carolina oysters to other markets, greatly increasing the size of the industry, and bringing in a larger financial return. Without these control measures and the system of certification of sanitation there would be no market for North Carolina shellfish products. These measures have saved the shellfish industry of the State and placed it on a much more stable basis than existed prior to the typhoid scare and consequent demoralization of the shellfish market in 1924. (Also see Fisheries Commission report, particularly with regard to the economic significance of shellfish control measures.)

BUREAU OF EPIDEMIOLOGY

The main objective of the Bureau of Epidemiology is to prevent and control in so far as possible the occurrence of infections and contagions with special reference to the following list of reportable diseases:

Typhoid Fever
Para-typhoid
Typhus Fever
Scarlet Fever
Diphtheria
Smallpox
Yellow Fever
Rabies
Whooping Cough
Measles
Chicken Pox
German Measles
Pellagra
Influenza
Tularemia
Cerebro-Spinal Meningitis
Infantile Paralysis
Ophthalmia Neonatorum
Septic Sore Throat
Venereal Diseases
Anthrax
Trachoma

For convenience of description, the methods employed by the Bureau of Epidemiology in accomplishing the objectives as prescribed by law may be divided into two definite divisions or units: first, that of the county unit dealing with the activities of the Quarantine Officer; and second, that of the Bureau itself or State unit.

County Unit; Quarantine Officers Duties. Every Quarantine Officer is the Bureau's representative in the field and in their respective county, and must, in accordance with Article 9, Section 7145, execute oath of office: "On the second Tuesday of July, one thousand nine hundred and seventeen, all county quarantine officers and all county health officers to whom the duties of county quarantine officer have been assigned, as provided for in this chapter, shall appear before the clerk of the Superior Court in their respective counties and make official oath or affirmation to faithfully enforce the provisions of this article. In those counties where a county board of health fails or neglects to elect a county quarantine officer on or before the second Tuesday of July, one thousand nine hundred and seventeen, the secretary of the North Carolina State Board of Health shall appoint a quarantine officer for the county. On refusal or neglect of any quarantine officer, or county health officer acting as quarantine officer, to make, within a period of ten days of the time named in this section, the aforesaid oath or affirmation, the secretary of the North Carolina State Board of Health is hereby empowered to remove such quarantine or county health officer and to appoint a quarantine officer to enforce the provisions of this article, and on the appointee are conferred all the powers, privileges, and compensation herein provided for the county quarantine officer."

The compensation of quarantine officers is paid by the respective counties in monthly installments in accordance with Article 9, Section 7150: "For his services the county quarantine officer shall be paid monthly, on certification from the secretary of the North Carolina State Board of Health that he has performed the duties of his office in a satisfactory manner, out of the county funds by the county treasurer, or in those counties that have no county treasurer by that official who performs the usual duties of the treasurer's office. The said certification and the sum paid the quarantine officer by the county authority shall be in accordance with a system of fees determined by the North Carolina State Board of Health for each item of work involved in the duties of the quarantine officer: *Provided*, however, that the total annual payment for any county shall not be in excess of the sum stated for such county classified according to population as follows:

	Per Month
Counties with a population less than 10,000	$15.00
Counties with a population of from 10,000 to 15,000	17.50
Counties with a population of from 15,000 to 25,000	25,00
Counties with a population of from 25,000 to 40,000	35.00
Counties with a population of from 40,000 to 50,000	45.00
Counties with a population over 50,000	50.00

In addition to such monthly salary, the county treasurer, or the person acting as county treasurer, shall pay to the quarantine officer all financial statements with receipted bills attached for sums paid out for pilotage, registration of letters, and disinfectants, the total sum not to exceed ten dollars in any month nor one hundred dollars in any one year. The secretary of the North Carolina State Board of Health shall supply the county quarantine officer, without cost to the county, with all forms, placards, and literature necessary for carrying out the provisions of this article. County authorities may revise their understandings with those county physicians who are acting as both physicians to county charges and as quarantine officers, and whose terms of office as quarantine officer shall expire in January, one thousand nine hundred and twenty-one, unless discontinued by death, resignation, or other disqualification, on a basis of compensation adequate to the new duties herein required; but in no case shall the compensation allowed for the services required of quarantine officers be less than that herein named."

The duties of the quarantine officer, acting as assistant collaborating epidemiologist, are similar to some extent to those designated by the State Board of Health to the Bureau of Epidemiology and may be briefly described as follows:

1. To secure reports from parents, teachers and physicians of all cases of communicable diseases in accordance with Section 7151 and 7152 under Article 9, Compilation of Public Health Laws.
2. To keep an accurate record in the office of all cases of communicable diseases reported.
3. To transmit all reports daily to the State Board of Health, Bureau of Epidemiology.
4. To supply the parent, guardian or householder, when the disease is reported, with rules and regulations governing the person, with a placard to be posted on the house, and with a pamphlet descriptive of the disease, its dangers, cause, mode of infection and methods of control, issued by the State Board of Health.
5. To inform the teachers in the community where the disease exists that the disease is present, and to supply them with rules and regulations governing the school while the disease is present, and with pamphlets descriptive of the disease, its dangers, cause, mode of infection and methods of control, to be distributed through the children to the parents represented in the school.
6. To furnish householders, physicians and teachers with forms to report diseases in their community which have not previously been reported.
7. To make the presence and location of transmittable diseases known to the public by publishing notices in the county paper when the disease appears and how to prevent it.
8. To enforce the laws, rules and regulations governing the control of communicable diseases as prescribed and adopted by the North Carolina State Board of Health.
9. To make monthly reports to the Bureau of Epidemiology of all the work, educational, administrative, or otherwise, done each month.
10. To investigate all cases of suspected contagions which have not been reported, to determine the nature of the disease.

During the course of the biennium, the following morbidity reports have been received and tabulated, according to the county in which they occurred, by the Bureau:

Whooping Cough	21,802
Measles	2,857
German Measles	2,035
Diphtheria	8,027
Scarlet Fever	6,086
Septic Sore Throat	238
Smallpox	1,276
Chicken Pox	11,586
Typhoid Fever	2,001
Para-typhoid	21
Epidemic Meningitis	208
Infantile Paralysis	203
Ophthalmia Neonatorum	22
Trachoma	4

In order to determine the efficiency of reporting, a morbidity survey was conducted jointly between the State Board of Health and the United States Public Health Service for the year 1929. The object of the survey was to obtain a fair sample of the prevalence of diphtheria, infantile paralysis, scarlet fever, smallpox, tuberculosis and typhoid fever during the year, and to compare the information obtained during the survey with reports actually recorded by the State Board of Health, Bureau of Epidemiology. A careful canvass of a sufficient number of population groups so distributed throughout the State that in the aggregate they constituted a fair sample of the total population. For each individual included in the survey, it was necessary to obtain the name, address, and the disease from which he suffered during 1929. The results of the survey are herewith given: (See Table No. 1.)

State Unit; Bureau of Epidemiology. In order for the reader to more easily comprehend the duties performed by this Bureau, consideration is given to the work under the following heads: 1. General Office Routine; 2. Special Immunization Campaigns for the Prevention of Typhoid Fever and Diphtheria.

Office Routine

The daily reports of communicable diseases are recorded by the Bureau of Epidemiology according to the county in which they occur. These are permanent records of the Bureau and they show the number, location, age, distribution, increase or decrease in the number of cases of each disease from month to month and from year to year.

Spot maps are kept showing the daily occurrence of cases and monthly occurrence of death of smallpox, diphtheria, scarlet fever, typhoid fever, pellagra and cerebro-spinal meningitis, according to the sections of the State in which they occur, by counties, townships, and whether the cases are urban or rural. An additional spot map is kept showing by counties the number and location of deaths from Malarial Fever for the years 1921 to 1930, inclusive.

Charts have been prepared showing the number of cases and deaths for typhoid fever, diphtheria, scarlet fever and smallpox for the years 1918 to 1929, inclusive. An additional chart has also been prepared showing the trend of death rates from Pellagra from 1922 to 1928, inclusive.

TABLE No. 1

MORBIDITY REGISTRATION SURVEY OF NORTH CAROLINA FOR THE YEAR 1929

Name of County	Number of Households	Number of Persons	Diphtheria	Reported	Percentage	Inf. Paralysis	Reported	Percentage	Scarlet Fever	Reported	Percentage	Smallpox	Reported	Percentage	Typhoid Fever	Reported	Percentage	Tuberculosis	Reported	Percentage	Total Efficiency in Reporting of all Diseases
Alexander	125	960	6	4	67	--	--	--	4	4	100	--	--	--	--	--	--	3	1	33	69
Anson	75	466	3	2	67	--	--	--	2	1	50	--	--	--	1	1	100	--	--	--	67
Ashe	125	910	2	2	100	--	--	--	--	--	--	--	--	--	1	1	100	--	--	--	100
Beaufort	128	561	2	2	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100
Bertie	125	796	--	--	--	--	--	--	2	1	50	--	--	--	--	--	--	1	1	100	66
Bladen	55	297	34	33	97	2	1	50	--	--	--	--	--	--	9	9	100	12	9	75	91
Brunswick	125	729	3	3	100	--	--	--	--	--	--	14	11	78	--	--	--	3	3	100	85
Buncombe	152	882	7	3	43	--	--	--	--	--	--	6	6	100	1	1	100	4	2	50	66
Burke	150	1,065	2	1	50	1	0	--	1	1	100	--	--	--	3	2	67	1	1	100	63
Cabarrus	128	666	1	1	100	--	--	--	1	1	100	--	--	--	--	--	--	--	--	--	100
Caldwell	130	980	6	4	67	--	--	--	2	2	100	8	5	63	1	1	100	1	1	100	72
Caswell	150	942	--	--	--	--	--	--	6	5	83	--	--	--	--	--	--	2	2	100	87
Catawba	179	902	4	3	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75
Cherokee	150	851	1	0	--	--	--	--	13	9	69	--	--	--	2	1	50	5	3	60	61
Chowan	135	921	6	4	67	--	--	--	1	1	100	--	--	--	--	--	--	--	--	--	71
Clay	125	810	--	--	--	--	--	--	3	3	100	--	--	--	1	0	--	--	--	--	75
Columbus	115	709	1	1	100	--	--	--	--	--	--	--	--	--	--	--	--	1	1	100	100
Craven	157	874	4	4	100	--	--	--	2	2	100	1	1	100	1	1	100	3	2	67	90
Cumberland	104	567	4	2	50	--	--	--	--	--	--	9	7	77	2	0	--	--	--	--	60
Currituck	133	880	6	3	50	--	--	--	8	2	25	23	20	87	--	--	--	2	1	50	67
Dare	100	463	2	2	100	--	--	--	--	--	--	--	--	--	--	--	--	2	0	--	50
Davidson	148	980	5	4	80	--	--	--	18	14	78	--	--	--	--	--	--	7	4	57	73
Davie	175	890	1	1	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100
Duplin	158	963	6	4	67	--	--	--	1	0	--	--	--	--	3	1	33	--	--	--	50
Durham	146	954	9	9	100	--	--	--	4	3	75	--	--	--	--	--	--	6	4	67	84
Edgecombe	147	883	5	4	80	--	--	--	2	1	50	2	1	50	2	2	100	4	1	25	60
Forsyth	104	583	4	4	100	--	--	--	1	1	100	--	--	--	--	--	--	1	1	100	100
Gaston	126	654	1	1	100	--	--	--	--	--	--	--	--	--	--	--	--	2	2	100	100
Gates	125	839	--	--	--	--	--	--	11	6	55	--	--	--	--	--	--	1	1	100	58
Granville	224	1,377	1	1	100	--	--	--	1	1	100	--	--	--	--	--	--	5	3	60	71
Guilford	189	945	81	77	95	3	3	100	87	80	92	1	0	--	10	10	100	33	20	60	83

Halifax	200	1,106	4	3	75	--	--	--	1	1	100	--	--	--	1	1	100	1	0	--	71
Haywood	150	1,005	6	6	100	--	--	--	4	3	75	--	--	--	--	--	--	--	--	--	90
Hoke	120	542	4	4	100	--	--	--	1	0	--	7	2	29	--	--	--	1	1	100	53
Iredell	165	875	4	3	75	--	--	--	1	1	100	--	--	--	--	--	--	--	--	--	80
Jackson	165	1,050	2	2	100	--	--	--	2	1	50	--	--	--	--	--	--	--	--	--	75
Johnston	91	455	51	48	94	1	1	100	21	20	95	4	1	25	18	18	100	--	--	--	92
Lenoir	176	965	9	9	100	--	--	--	4	3	75	14	13	93	6	4	67	1	1	100	85
Lincoln	112	560	1	1	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100
Macon	135	890	1	1	100	--	--	--	8	4	50	--	--	--	--	--	--	--	--	--	55
Madison	200	1,055	10	8	80	--	--	--	1	1	100	--	--	--	--	--	--	5	4	80	81
Martin	125	720	2	1	50	--	--	--	--	--	--	--	--	--	--	--	--	1	1	100	67
McDowell	150	1,010	3	3	100	1	0	--	2	1	50	--	--	--	--	--	--	--	--	--	67
Mitchell	125	940	--	--	--	--	--	--	3	1	33	--	--	--	1	1	100	1	0	--	50
Moore	129	870	35	31	88	--	--	--	1	0	--	15	12	80	2	2	100	2	1	50	70
Nash	161	930	7	6	86	1	1	100	--	--	--	--	--	--	1	1	100	1	0	--	80
New Hanover	152	961	52	47	90	--	--	--	13	11	84	10	8	80	6	4	67	25	11	44	57
Onslow	136	834	2	2	100	--	--	--	--	--	--	--	--	--	2	1	50	--	--	--	75
Pamlico	141	739	--	--	--	--	--	--	2	1	50	--	--	--	1	0	--	1	1	100	50
Perquimans	42	275	2	2	100	--	--	--	3	1	33	--	--	--	--	--	--	--	--	--	60
Randolph	125	913	25	19	76	1	1	100	50	41	82	--	--	--	1	1	100	2	2	100	81
Richmond	143	813	2	2	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100
Robeson	123	880	9	9	100	--	--	--	11	11	100	1	1	100	3	3	100	3	2	67	96
Rockingham	160	1,060	4	3	75	--	--	--	3	2	67	--	--	--	--	--	--	--	--	--	71
Rowan	136	736	6	6	100	--	--	--	--	--	--	--	--	--	--	--	--	4	3	75	90
Rutherford	175	974	12	9	75	1	0	--	1	0	--	2	0	--	4	1	25	--	--	--	50
Sampson	87	492	9	6	67	--	--	--	1	0	--	1	1	100	--	--	--	3	3	100	71
Scotland	125	607	1	1	100	--	--	--	--	--	--	--	--	--	1	1	100	--	--	--	100
Stokes	125	920	1	1	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100
Surry	146	794	3	3	100	--	--	--	29	16	55	--	--	--	4	2	50	6	4	67	78
Swain	125	930	--	--	--	2	0	--	1	1	100	--	--	--	--	--	--	2	2	100	60
Transylvania	125	800	1	1	100	--	--	--	2	1	50	--	--	--	--	--	--	--	--	--	67
Tyrrell	23	137	1	1	100	--	--	--	--	--	--	--	--	--	1	1	100	--	--	--	100
Vance	206	1,225	6	5	83	1	0	--	8	8	100	--	--	--	1	1	100	5	2	40	76
Wake	143	837	15	15	100	--	--	--	10	10	100	--	--	--	1	0	--	5	5	100	96
Watauga	125	920	--	--	--	--	--	--	1	1	100	--	--	--	--	--	--	--	--	--	100
Wayne	96	409	4	3	75	--	--	--	--	--	--	--	--	--	--	--	--	3	3	100	85
Wilson	126	772	21	18	80	--	--	--	13	4	30	--	--	--	3	3	100	4	4	100	70
Yadkin	125	950	--			--	--	--	10	7	70	--	--	--	--	--	--				70
Yancey	125	950	--	--	--	--	--	--	2	2	100	3	0	--	--	--	--	1	1	100	50
Totals	9,447	57,200	522	458	87%	14	7	50%	379	291	76%	121	89	73%	94	75	78%	176	114	64%	79.1%

Weekly telegraphic and monthly written reports of all cases of infectious and contagious diseases reported are made to the Surgeon-General, United States Public Health Service, Washington, D. C.

Report cards, blank forms, educational posters, placards and literature pertaining to reportable diseases, and all rules and regulations governing the control of communicable diseases are prepared and distributed to all aassistant collaborating epidemiologists, physicians, and others by the Bureau.

Weekly bulletins are issued by the Bureau showing the prevalence of typhoid fever, diphtheria, smallpox, scarlet fever, measles and whooping cough by counties. These bulletins are mailed to all assistant collaborating epidemiologists, members of the State Board of Health, and others interested in the occurrence of these diseases in the State.

The morbidity statistics of all reportable diseases are checked against the mortality statistics in order to establish the efficiency of reporting, each physician signing the death certificate, giving the cause of death from some reportable disease, being written to individually.

For each case of typhoid fever occurring in the State, an investigation record is secured, giving the history of the case in order to determine the source of infection. These investigation records are utilized by a State map showing by counties and townships the number of typhoid fever cases occurring within the sanitated area of the county and those occurring outside the sanitated area of the county.

Summary of Office Work

Letters received	3,120
Letters written—Individual	5,019
Letters written—Multigraphed	295
Circular letters	32,286
Telegrams sent	263
Telegrams received	147
Requests received and filled	1,350

COMPILED MONTHLY REPORT OF PART-TIME COUNTY QUARANTINE OFFICERS JULY 1, 1928, TO JUNE 30, 1930

Cases reported by householder	1,683
Cases reported by quarantine officers and nurses	3,479
Cases reported by physicians	10,025
Cases reported by teachers	832
Total number of cases reported	16,019
Homes placarded	11,226
Articles published	37
Teachers' certificates	1,931
Indictments	1

Communicable Disease Control

The control of communicable diseases is by and large an outstanding function of the Bureau of Epidemiology. In addition to campaigns conducted by full-time county health departments, special campaigns have been conducted by the Bureau in eighteen counties maintaining part-time county health departments.

The campaigns are conducted in the following manner: The Bureau of Epidemiology circularizes the county and furnishes advertising material to the county for the mailing list made up from the tax books.

The Bureau makes up a mailing list from the records of births in the county filed with the Bureau of Vital Statistics.

Physicians who participate in these campaigns are paid 25¢ for each completed vaccination consisting of three single doses. Physicians make reports to the Bureau on forms supplied for this purpose. These are checked and certifications sent to the County Commissioners for payment.

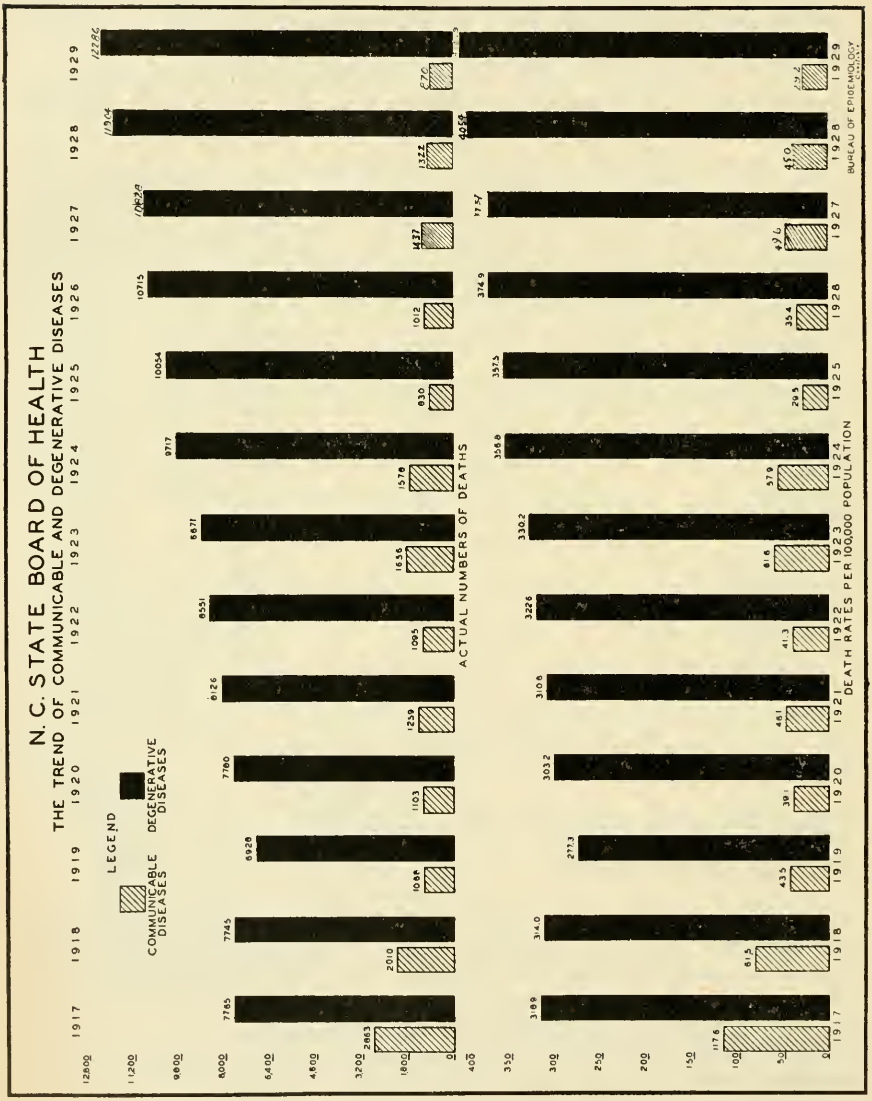
List of counties in which special campaigns for the prevention of typhoid fever and diphtheria, together with the population immunized, is given below:

County	Date	Number Taking Three Doses Typhoid Vaccine	Number Taking Three Doses Toxin Antitoxin
1. Chatham	1928	209	50
2. Hoke	1928	1,261	534
3. Brunswick	1929	2,004	4,334
4. Catawba	1929	12,057	2,693
5. Chatham	1929	7,320	179
6. Dare	1929	1,327	305
7. Lincoln	1929	10,185	2,085
8. Macon	1929	9,879	--------
9. Montgomery	1929	1,076	611
10. Pasquotank	1929	4,334	1,597
11. Person	1929	6,690	1,046
12. Watauga	1929	4,073	909
13. Yancey	1929	6,800	3,100
14. Greene	1930	11,547	4,295
15. Person	1930	980	375
16. Martin	1930	7,362	2,005
17. Camden	1930	1,808	100
18. Davie	1930	5,040	1,212
Totals		93,952	25,430

	No. Taking Three Doses Typhoid Vaccine	*No. Taking Three Doses Toxin Antitoxin*
Total (2 counties—1928)	1,470	584
Total (11 counties—1929)	65,745	16,859
Total (5 counties—1930)	26,737	7,987

On the whole, for the years 1917 to 1926 inclusive, communicable diseases have shown a remarkable decline, while degenerative diseases on the other hand have shown an increase. The following graph illustrates the comparisons: (See Graph No. 2.)

It is interesting to note, however, the fight against typhoid and diphtheria, two of our most common communicable diseases, has been a consistently winning one during the past sixteen years.


N. C. STATE BOARD OF HEALTH
THE TREND OF COMMUNICABLE AND DEGENERATIVE DISEASES
LEGEND
COMMUNICABLE DISEASES
DEGENERATIVE DISEASES
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
ACTUAL NUMBERS OF DEATHS
12,800
11,200
9,600
8,000
6,400
4,800
3,200
1,600
0
2863
7765
2010
7745
1068
6928
1103
7780
1259
8126
1095
8551
1656
8871
1578
9717
830
10054
1012
10715
1437
10928
1322
11904
870
12286
DEATH RATES PER 100,000 POPULATION
400
350
300
250
200
150
100
50
0
117.6
318.9
61.5
314.0
43.5
277.3
39.1
303.2
46.1
310.8
41.3
322.6
61.8
330.2
57.9
358.8
29.5
357.5
35.4
374.9
49.6
450
405.4
292
1917
1918
1919
1920
1921
1922
1923
1924
1925
1928
1927
1928
1929
BUREAU OF EPIDEMIOLOGY

Venereal Disease Control

The Bureau of Epidemiology has been unable to maintain public clinics for the treatment of indigent cases of veneral diseases, however, the Bureau has received a large number of letters requesting bulletins, pamphlets and advice, and has stimulated the organization of county clinics for the treatment of these diseases. All such requests have been carefully answered and whatever information called for sent.

The purposes of this dessemination of information are as follows:

1. To stimulate the provision of facilities for proper treatment by establishing clinics for persons infected with venereal disease who are unable to pay for treatment from private physicians.
2. Information concerning patients dangerous to the public health is referred to local health officers for investigation and action.
3. Instruction and advice is given to persons infected with venereal disease concerning the necessity for proper treatment and continuing treatment until cured.
4. Tabulations are made from the data collected in an effort to gain knowledge of the prevalence of infection and the best methods of prevention.

In gathering information concerning cases of venereal diseases dangerous to the public health, the Bureau has had recourse to the usual procedure of requiring physicians to report their cases and requiring druggists to report the sale of venereal disease remedies. These reports by physicians and druggists are required by Chapters 206 and 214, respectively, Public Health Laws of 1919.

The system of reporting provided by law and the regulations adopted by the State Board of Health is designed especially to furnish usuable information concerning dangerous cases. For this reason, physicians are required to report names and addresses only when in their judgment the patients should be under the supervision of the health officer in order to protect the public health. When patients are considered trustworthy, physicians may report their cases by number without disclosure of identity.

Reports that reach the office are so handled that information concerning cases that should be investigated is referred to the local health officer. Every effort is made to encourage reporting by physicians through courteous treatment rather than by harsh measures. In carrying out this policy, a number of form letters have been drafted for use in the routine handling of venereal disease case reports.

There have been reported to this office the following number of cases of venereal diseases from the one hundred counties in the State:

Syphilis	8,542
Gonorrhea	4,005
Chancroid	193
Total	12,740

During the course of the biennium, a total of 69,106 case reports of all reportable diseases have been received and recorded by the Bureau of Epidemiology for the entire State.

BUREAU OF HEALTH EDUCATION

The general educational work of the Board is headed in this Bureau with three major activities: (1) Editing the monthly publication of the Board, *The Health Bulletin;* attention to the personal hygiene correspondence of the Board; the preparation of special publications on timely subjects; the preparation of special newspaper articles; supervision of radio broadcasts. (2) Visual health education through the maintenance of a mobile field unit carrying motion pictures. (3) The distribution of health literature.

The objective is to present to the people of all sections of the State, in an understandable manner, the elemental principles of disease prevention, which means correct personal hygiene and sanitation. The work is intended to disseminate scientific information in terms that can be readily understood and assimilated to the end that a desire for positive health shall be created.

(1) *The Health Bulletin* has been issued monthly to a list of approximately twenty-five thousand, the mailing list being made up largely of those who have requested that the Bulletin be sent to them regularly. Each issue contains thirty-two pages of material, covering a rather wide variety of articles on health subjects. The material published in the Bulletin balances between editorial matter and special articles by competent writers. Much of the material has been written to especial order for exclusive publication in the *Bulletin.*

Attention to the personal hygiene service of the Board entails the writing of a large number of letters in response to inquiries made of the Board on medical subjects. The subjects upon which information is desired cover a wide range, and the intelligent answering of which entails a careful reading and knowledge of medical subjects. Letters of inquiry have received prompt attention and information, when possible to obtain, has been passed along to the inquirers. No special count has been kept of the number of such letters answered, but the total number will run into many hundreds during the period of a year.

During the second year of the biennium a special article suitable for local publication in newspapers has been prepared and mailed each week to the health officers and secretaries of the counties of the boards of health in each of the one hundred counties of the State. These articles have been known as "Health Items," and have covered many subjects of timely interest. In addition, from time to time special pamphlets, placards, and newspaper articles are prepared, and former special pamphlets revised. Several radio talks on public health subjects have been made during the period.

A number of special bulletins dealing with some specific and important health subject have been prepared and distributed.

Late in the biennium arrangements were perfected for weekly broadcasts over radio stations at Raleigh, Charlotte, and Winston-Salem. Timely subjects are selected and the material prepared for presentation in fifteen-minute periods.

(2) For the visual education program there is field equipment consisting of automobile truck, portable projectors, Delco generator, and a

film library of about eighty reels. The equipment makes possible showings in public school buildings regardless of whether or not the building has available electric current. The unit is in charge of a trained mechanic operator.

The service has been restricted to those counties having full-time public health service and has been utilized to make more valuable such local service. It is maintained for eight months each year, experience having demonstrated that it is most useful during the period when the public schools are in session.

During the biennium the service was given in the following counties: Cabarrus, Guilford, Mecklenburg, Durham, Wilson, Robeson, Pitt, Johnston, Pamlico, Sampson, Columbus, Randolph, Cumberland, Gaston, Moore, Richmond, Wake, Edgecombe, Halifax, and Nash. The total estimated attendance was 72,751.

(3) The Board has prepared and has available for free distribution a large number of special bulletins, pamphlets, leaflets and placards on various health subjects which are distributed through a central mailing room. In addition special educational publications dealing with maternity and infancy problems are distributed through the Bureau of Maternity and Infancy, and similar publications dealing with public water supplies, sewage disposal and sanitation are distributed through the Bureau of Sanitary Engineering and Inspection. Included in the general list are adenoids and tonsils, cancer, constipation, colds, community cleanliness, chicken-pox, diphtheria, eyes, flies, German measles, hookworm disease, infantile paralysis, influenza, malaria, measles, pellagra, prenatal care, sanitary privies, scarlet fever, smallpox, teeth, tuberculosis, typhoid fever, venereal diseases, water supplies, whooping cough.

In addition there are frequent articles for distribution either multigraphed or mimeographed.

Statistically, this portion of the work was as follows: Pieces of literature distributed, 2,330,700; Monthly *Health Bulletin* mailed, 619,000; multigraph forms, 273; totaling 429,791 copies; mimeograph forms, 903; totaling 500,662 copies.

LIFE EXTENSION DIVISION

FREDERICK R. TAYLOR, M. D., *Director*

During the past year and a half the Life Extension Division of the North Carolina State Board of Health has been engaged in a campaign to interest physicians of the State in making periodic health examinations on all who would come to them, and to interest the people of the State, physicians included, in having these examinations made at least annually. The standard periodic health examination forms printed by the American Medical Association have been used, with a few alterations and additions found desirable in our experience. Our campaign has been carried on entirely through the medical profession. In the larger centers the local medical societies have been appealed to, and often talks have been given to various lay organizations, such as civic clubs, women's clubs, parent-teachers' associations, etc. At times representatives of the press have been interviewed, and various articles written for publication. All the work has been done with the approval of the local physicians where special localities are involved. In the smaller places, in addition to the work outlined above, clinical demonstrations have been held, usually in doctors' offices, sometimes in school buildings, etc., where a selected few have been examined, in the presence of their own physicians whenever practicable. Many physicians have been personally examined as a way of demonstrating to them technique and showing the need of health examinations.

Every one of the 100 counties of North Carolina has been visited in the campaign, and active work of some kind has been carried on in all but 10 of them. In these ten, coöperation of the local profession in the work could not be obtained for one reason or another. In Clay County, for example, the only doctor in the county belonging to the State Medical Society was ill and could not coöperate. It has been our experience with very few exceptions, that the few physicians who do not belong to the State Medical Society are not interested in progressive medicine, and it is hardly worth while to visit most of them. Many individual physicians were interviewed, this being the usual procedure in the small places.

Our total activities have included the following:

A preliminary trip to New York for study and observation. The details of this were given in last year's report.

Twenty-four talks to county medical societies.

Five talks to city medical groups.

Five talks to district medical societies.

Two papers before the Medical Society of the State of North Carolina.

Discussion before the Tri-State Medical Society of Virginia and the Carolinas.

Discussion before the Southern Medical Association.

One talk to a hospital staff meeting.

One talk to a combined county medical and dental society.

One talk to a city dental society.

Three hundred and forty individual physicians interviewed.

Attended one meeting of the Committee on Periodic Health Examinations of the Guilford County Medical Society.

Forty-six talks to civic clubs.

One talk to the Watauga Club, Raleigh.

Seven talks to Women's Clubs.

Sixteen talks to local Parent-Teachers' Association.

One talk to a District Parent-Teachers' Association.

Four talks to groups of teachers.

One talk to a County Council meeting.

Seven talks to special community meetings.

Eleven talks to graded and high schools.

Eleven talks at colleges and universities.

One talk to a ministers' association.

Two individual ministers interviewed.

Two talks to church groups.

Four newspaper men interviewed. Many other, probably twenty or thirty, were examined in demonstration clinics, and interviewed to some extent at the time of examination.

One talk to a girls' camp.

One radio talk from station WPTF, Raleigh.

One Commencement Address to the Graduating Class of Nurses at the Charlotte Sanatorium. Another Commencement Address was prepared for the nurses at the Park View Hospital at Rocky Mount, but by an error, two persons were each asked to give the address, and I yielded to Dr. H. A. Royster of Raleigh.

One hundred and forty-four demonstration clinics.

Two special clinics were held, not included in the above, at which no other physicians were present. In one, we examined all the sixty-seven boys in the Eastern Carolina Training School at Rocky Mount, this clinic lasting a week. In the other, we examined the winners of the Health contests held in five districts of the State—the winning boy and girl from each district, to select the State winners, who were crowned King and Queen of Health. This work was done at State College in Raleigh under the auspices of the 4-H Clubs of the State.

About thirty consultations were held on actually sick persons with other doctors. While this is not technically periodic health examination work, it was felt that any assistance that could be rendered to any members of the medical profession and the public that would not interfere with our other work was really a part of our duty. These consultations were rendered free. Many of them were in remote districts where experienced consultants were not available except at very considerable expense to patients unable to pay for such services. Very accurate records of the number of these consultations were not kept, but the estimate is certainly not in excess of the facts.

Attended the North Carolina Hospital Association meeting in High Point, but had little opportunity to discuss our work there, outside of interviewing a few individual physicians.

Attended a special meeting at Charlotte to coördinate some proposed work sponsored by the American Health Association with the activities of the North Carolina Tuberculosis Association.

Wrote eighteen editorials on periodic health examinations for *Southern Medicine and Surgery.*

Wrote six articles for the North Carolina *Health Bulletin.*

Wrote three articles for local newspapers.

Wrote an article for *Hygeia.*

Wrote an article for the *American Journal of Public Health.*

Sent a full report and description of our work covering a little more than the first year to Dr. Otto Leber, Chairman of the Committee on Periodic Health Examinations of the New York County Medical Society at his request.

Perhaps the best result of any one thing that was done followed a talk to about three hundred teachers of Guilford County. I know of nothing else in our work comparable to it. In the talk, the need of periodic health examinations was stressed as usual, and the family physician held up as the right man to make such examinations if he would interest himself in that work and give thorough examinations. Nothing was said regarding the cost of these examinations—that was considered entirely a matter between the individual physician and patient. Miss Reba Harris, Associate Professor of Physiology of the North Carolina College for Women, held an after meeting with these teachers, and inquired how many of them would like to have health examinations by physicians in private practice. She reports that ninety-five per cent of them expressed the desire for such examinations, and then they asked her to go to the president of the Guilford County Medical Society to get from him a list of all the physicians in the county who would be willing and able to make really careful and thorough health examinations for teachers at a fee of ten dollars for such an examination; *but they wanted an examination worth ten dollars, and not one worth ten cents!* It is hardly necessary to add that such an event will do almost as much to stimulate real diagnostic work on the part of the Guilford physicians as it will do for the patients, and so will have an influence far beyond that particular group of teachers.

Taking the various phases of the work in general, one would like to think that the demonstration clinics were the most valuable feature of it all, yet there is room of question about that. In a clinic lasting a half a day or a day, it is not possible to train incompetent men to competence, or careless men to carefulness. The doctors who profitted most by the demonstrations were probably those who needed them least. However, they did, we believe, stimulate much interest in the work, and this was absolutely necessary, or the people would all too often go to their physicians for health examinations only to be told that if they were not sick they did not need any examination.

Not the least of the educational value of this work was the great opportunity given to myself to broaden my viewpoint of medicine, to improve my technique in physical diagnosis, and to make contacts with many men of many kinds in the medical profession of the State, as well as with many, many laymen and women whom it has been a most unique privilege to meet. At times the work has been very arduous, seeming to be almost more than I could carry on, but the compensation has been far more than a financial one, and has been such, in the way of invaluable experience as can come to few men in a lifetime.

In conclusion, I wish to mention two persons without whose coöperation and help the work of our bureau would have been quite impossible.

Dr. Charles O'H. Laughinghouse has proved a most inspiring chief. His bigness of mind and heart have been constantly in evidence. Whenever difficult problems have been referred to him, he has shown a singular insight into them and an ability to remove mountains that at times seemed insuperable. Above all else, however, stand the repeated evidences he has given of his personal friendship for, and interest in, those in his employ, so that we have always had absolute confidence in his never-failing support at all times.

Mr. Fred T. Hauser, my assistant and laboratory technician, has borne much of the burden of detail work, has taken on himself much of the considerable labor of long distance automobile driving, and has, by his loyalty, conscientious devotion to duty, and unfailing good nature, been well-nigh indispensable.

DIAGNOSES OF 522 APPARENTLY HEALTHY PERSONS EXAMINED IN HEALTH CLINICS

(No. of defects in each patient given in parentheses.)

1. Hemorrhoids. (1)
2. Chronic Hypertensive nephritis. (1)
3. Eyestrain, lichen planus, eosinophilia. (3)
4. Diabetes mellitus. (1)
5. Diabetes mellitus. (1)
6. Hemorrhoids. (1)
7. Two congenital heart lesions with anemia. (Patent ductus arteriosus with pulmonary stenosis?) (3)
8. Arthritis of hip and anemia. (2)
9. Chronic cervicitis and laparotomy adhesions. (2)
10. Hypogenadiam and obesity. (2)
11. Chronic infected tonsils. (1)
12. Essential hypertension. (1)
13. Mitral stenosis. (1)
14. Bad habits of eating, eyestrain, infected tonsils, colloid goitre. (4)
15. Hemorrhoids. (1) (very bad)
16. Obesity, abdominal adhesions. (2) (obesity extreme)
17. Obesity and pyorrhea. (2)
18. General bad habits of living—alcohol, tobacco, venery, 8 auto wrecks, etc., and hysteris. Bad eating and lack of sleep. (7)
19. Essential hypertension. (1)
20. Pyorrhea. (1)
21. Dental infection. (1)
22. Displaced uterus. (1)
23. Dental infection and deafness. (2)
24. Hypertrophied prostate, chronic cystitis, purgative habit. (3)
25. Excessive hours of work, pyorrhea. (2)
26. Toxic goitre, myocardial weakness. (2)
27. Anemia from postpartum hemorrhage, extensive dental caries, lacerated cervix, malnutrition. (4)
28. Extreme varicose veins, dental infection. (2)
29. Dental caries, epiplocole. (2)
30. Dental caries, stiff toe (traumatic), deafness. (3)

31. Obesity, excessive hours of work. (2)
32. Infected teeth and tonsils, polyarthritis, obesity. (4)
33. Pyorrhea, secondary anemia. (2)
34. Inguinal hernia, anemia, eosinophilia. (3)
35. Eyestrain, dental caries, inguinal hernia. (3)
36. Eyestrain, anemia. (2)
37. Eyestrain, hemorrhoids, flat feet, deafness. (4)
38. Fever of undetermined origin. (1)
39. Excessive hours of work, eyestrain, pyorrhea, hypertrophied prostate, chronic cystitis, varicocole. (6)
40. Rhus dermatitis, infected tonsils, chronic appendicitis, hyperthyroidism. (4)
41. Salphingitis. (1)
42. Eyestrain, undiagnosed pelvic trouble. (2)
43. Eyestrain, tachycardia of undetermined origin, lacerated perineum, eroded cervix. (4)
44. Anxiety hysteria. (1)
45. Malnutrition, infected tonsils, anemia. (3)
46. Dental caries, hemorrhoids. (2)
47. Infected tonsils, colloid goitre. (2)
48. Dental caries. (1)
49. Pelvic lacerations, retroflexion, fibroid. (3)
50. Pterygia, dental infection, subacute bronchitis, hypertrophied prostate, chronic hypertensive nephritis. (5)
51. Eyestrain, pelvic lacerations, cystitis, pyelitis, antral sinusitis, gallbladder disease. (6)
52. Deflected nasal septum, dental caries. (2)
53. Hemorrhoids. (1)
54. Pelvic lacerations, cystitis, pyelitis. (3)
55. Dental infection, chronic hypertensive nephritis. (2)
56. Chloasma, albuminuria, cause unknown. (2)
57. Chronic gall-bladder disease. (1)
58. Excessive hours of work, eyestrain, pyorrhea. (3)
59. Excessive hours of work, insufficient sleep, hemorrhoids, secondary anemia. left inguinal hernia, pyorrhea. abdominal adhesions, excessive tobacco, intercostal neuritis, frontal sinusitis refractive error, arrested pulmonary tuberculosis. (12)
60. Malnutrition, eyestrain, chronic gall-bladder disease, stricture of rectum. (4)
61. Pelvic lacerations, injured coccyx. (2)
62. Bronchial asthma, infected foot. (2)
63. Toxic adenoma of thyroid. (1)
64. Obesity. (1)
65. Excessive hours of work, hypertension. (2)
66. Excessive tobacco, deflected nasal septum. (2)
67. Obesity, hypertension. (2)
68. Obesity, mucous colitis. (2)
69. Malnutrition, toxic adenoma of thyroid. (2)
70. Eyestrain, weak metatarsophalangeal joint, (little toe), chronic sigmoiditis. (3)
71. Eyestrain, hypertrophied prostate. (2)
72. Excessive hours of work, renal calculus, obesity. (3)
73. Malnutrition, eyestrain, deafness, dental infection, multiple hemangiomata, chronic systitis. (6)
74. Thickened eardrum, deafness. (2)
75. Obesity. (1)
76. Chronic infected tonsils, malnutrition. (2)
77. Extreme dental sepsis, hypotension. (2)
78. Extreme dental sepsis, hypertrophy of left lobe of prostate. (2)
79. Early pulmonary tuberculosis, laryngeal trouble of undetermined nature, malnutrition, excessive sweets between meals. (4)
80. Eyestrain, chronic infected tonsils. (2)
81. Chronic appendicitis. (1)
82. Excessive tobacco, extreme hemorrhoids. (2)

83. Dental infection, chronic mastoid infection, hemorrhoids. (3)
84. Dental caries, filbroma of breast, eyestrain, eczoma of ear, chronic gall-bladder disease. (5)
85. Hypertrophied prostate, traumatic cataract. (2)
86. Obstructed Eustachian tube, retroversion, eroded cervix, hemorrhoids, hyperthyroidism. (5)
87. Eyestrain, chronic antral sinusitis, pelvic lacerations, erosion of cervix, lateral displacement of uterus. (5)
88. Pyorrhea, obesity. (2)
89. Blepharitis, pyorrhea, hemorrhoids, diabetes mellitus. (4)
90. Eyestrain, dental sepsis. (2)
91. Eyestrain, hypertrophied prostate. (2)
92. Infected tonsils, erosion of cervix. (2)
93. Chronic cystitis, pyelitis, strictured ureter. (3)
94. Malnutrition, dental infection, deflected nasal septum, hemorrhoids. (4)
95. Pulmonary tuberculosis. (1)
96. Malnutrition, deafness. (2)
97. Excessive hours of work, dental infection, migraine, vagal attacks. (4)
98. Pyorrhea, obesity, obstructed nose (congenital deformity), eyestrain. (4)
99. Subclavian aneurism, dental sepsis. (2)
100. Pulmonary tuberculosis, excessive coca-colas and tobacco. (3)
101. Chronic infected tonsils, chronic appendicitis. (2)
102. Eyestrain, chronic infected tonsils, obesity, chronic alcoholism. (4)
103. Obesity, varicose veins. (2)
104. Chronic gastritis, cause unknown. (1)
105. Large pigmented nevus of neck, eyestrain, deafness, hemorrhoids, bilateral inguinal hernia. (5)
106. Obesity, hemorrhoids. (2)
107. Irregular eating, excessive coca-colas and tobacco, insufficient sleep, dental caries, deflected nasal septum. (6)
108. Excessive tobacco, scabies. (2)
109. Hypertrophied prostate, painful calluses of feet. (2)
110. Tuberculosis peritonitis, old pulmonary tuberculosis (arrested), eyestrain. (3)
111. Arteriosclerosis, right inguinal hernia, hypertension. (3)
112. Excessive cigarettes, underweight, varicose veins, bronchiectasis (previously diagnosed by X-rays). (4)
113. Chronic appendicitis, pyelitis, excessive tobacco. (3) (Grandson of Siamese twins.)
114. Irregular eating, hydrocele of spermatic cord, hypertrophy of prostate, ecsinophilia, secondary anemia. (5)
115. Habit spasm of eyebrows, dental infection, chronic tonsilitis, chronic cystitis, hypertension, anemia. (6)
116. Eyestrain, deafness, tender cervix, double uterus (2 external ossa), mass in left hypochondrium of undetermined nature. (5)
117. Eyestrain, chronic gall-bladder disease, arrested tuberculosis. (3)
118. Toxic adenoma of thyroid, chronic eczema, erosion of cervix. (3)
119. Hypotension, eyestrain. (2)
120. Simple adenoma of thyroid, chronic appendicitis, eosinophilia, corns, bunions. (5)
121. Eyetsrain, infected tonsils, retroversion, corns, bunions. (5)
122. Dental caries, infected tonsils, corns. (3)
123. Eyestrain, corns, bilateral otitis media, boils. (4)
124. Chronic prostatitis, chronic appendicitis, eyestrain. (3)
125. Eyestrain, obesity. (2)
126. Eyestrain, chronic appendicitis, ringworm of hand. (3)
127. Constipation, diverticulitis. (2)
128. Eyestrain, corns, bilateral otitis media, boils. (4)
129. Chronic cholecystitis, old radium burn, hypofunction of ovaries, eyestrain, corns, bunions. (6)
130. Eyestrain, corns, bunions. (3)

131. Large pigmented mole, spongy gums. (2)
132. Toxic adenoma of thyroid, corns. (2)
133. Eyestrain with badly defective vision. (1) (Vision 20/70 both eyes)
134. Dental infection, arrested tuberculosis, left inguinal hernia. (3)
135. Pulmonary tuberculosis, tuberculosis of testicle, tuberculosis cutis, extreme eosinophilia (25%). (4)
136. Calluses of feet, eyestrain. (2)
137. Chronic appendicitis. (1)
138. Eyestrain, large moles, dysmonorrhea with excessive flow, anemia. (5)
139. Dysmenorrhea with excessive flow, anemia, metrorhagia, chronic rhinitis, constipation. (6)
140. Eyestrain, infected tonsils, retroversion, corns. (4)
141. Eyestrain, dental caries, eczematoid ringworm of toes, irregular menstruation, menorrhagia. (5)
142. Eyestrain, subacute bronchitis, flat feet, corns. (4)
143. Hypertension, scoliosis, corns, anemia, cause unknown. (4)
144. Eyestrain, infected teeth, obesity. (3)
145. Chronic gall-bladder disease, obesity. (2)
146. Exophthalmic goitre, excessive sugar in diet, hypotension, menorrhagia. (4)
147. Toxic adenoma of thyroid, abdominal adhesions, corns, peculiar bodily proportions—thin face, neck, thorax, and abdomen, thick thighs and legs. (4)
148. Obesity, excessive tension of work. (2)
149. Large mole, varicose veins, anemia. (3)
150. Eyestrain, obesity, flat feet, mild bacillary dysentery. (2)
151. Scar of old breast amputation for cancer, enlarged supraclavicular nodes—probably recurrent cancer, varicose veins, chronic appendicitis. (4)
152. Malnutrition, eyestrain, pyorrhea, chronic gall-bladder disease, pneumokoniosis, tuberculosis peritonitis. (6)
153. Eyestrain, obesity. (2)
154. Excessive tobacco eyestrain, dental infection, chronic gall-bladder disease, pyelitis, atrophied testicles (mumps). (6)
155. Obesity, pterygium of left eye, eyestrain, hyportrophied prostate, hemorrhoids. (5)
156. Bad habits of eating, tobacco heart, dental sepsis, eyestrain, cholecystitis. (5)
157. Dental infection, eyestrain, multiple fibromata and moles. (4)
158. Convalescence from gall-bladder and appendix operation, malnutrition, eyestrain. (3)
159. Infected tonsils, bronchial asthma, deafness left ear, sycosis vulgaris. (4)
160. Deafness, deflected nasal septum, dental infection, acne vulgaris. (4)
161. Crippled feet, obesity. (2)
162. Insomnia, malnutrition, lupus erythematosus, dental caries, undiagnosed condition of lungs, (general friction sound without anything else), chronic appendicitis. (6)
163. Obesity, varicose veins, chronic cystitis. (3)
164. Excessive hours of work and cigarettes, many nevi, atrophy of testicle (mumps), varicocele, corns, dental infection, cystitis. (8)
165. Purgative habit, dental caries, infected tonsils, prostatitis, tight shoes, hammer toes. (6)
166. Diabetes mellitus, eyestrain, ruptured eardrum, phimosis. (4)
167. Malnutrition, subacute rheumatic endocarditis. (2)
168. Eyestrain, infected tonsils, acne moles, hemorrhoids, pyelitis. (6)
169. Strictured ureter, anemia. (2)
170. Obesity, excess tobacco, chronic appendicitis. (3)
171. Tendency to prolapse of rectum. (1)
172. Obesity, tinea of axillae, groin and feet. (4)
173. Tinea versicolor, hypertrophied prostate, chronic appendicitis. (3)

174. Chronic fibroid phthisis, chronic gastritis, chronic appendicitis, chronic cystitis, bunion of left foot, probable median bar enlargement of prostate. (6)
175. Excessive tobacco, left antral sinusiti. (2)
176. Deflected nasal septum, chronic gall-bladder disease, fibroid of uterus. (3)
177. Eyestrain, right apical tuberculosis, chronic appendicitis, bunions, bilateral club feet, excessive tobacco. (6)
178. Obesity, eyestrain, chronic hypertensive nephritis, rectal polyp, fibroma of foot, weak arches. (6)
179. Phimosis, cystitis, excessive coca-colas, excessive hours of work, pyorrhea, fibromata of skin. (6)
180. Malnutrition, eyestrain, pyorrhea, chronic nasopharyngitis, vasomotor instability, chronic appendicitis. (6)
181. Eyestrain, traumatic neurosis. (2)
182. Possible bilateral hydronephrosis, low pulse pressure (16), tachycardia of unknown origin. (3)
183. Excessive alcohol and tobacco, obesity, pterygia, coryza. (5)
184. Chronic appendicitis. (1)
185. Eyestrain, dental caries, hemorrhoids. (3)
186. Obesity, pyorrhea, emphysema, arrested tuberculosis, arteriosclerotic lesion of brain with paralysis of left side of tongue. (5)
187. Excessive tobacco, malnutrition, probable pernicious anemia, hypertrophy of prostate. (4)
188. Excessive hours of work, insufficient sleep, excessive tobacco obesity, hemorrhoids, cirrhosis of liver, hammer toes. (7)
189. Excessive hours of work, insufficient sleep, pyorrhea, infected tonsils, varicose veins, hypertrophied prostate. (6)
190. Malnutrition, pyorrhea, chronic infected tonsils, chronic fibroid phthisis, hammer toes, corns, weak arches, eyestrain. (8)
191. Arrested tuberculosis (old mustard gas case), chronic appendicitis, eyestrain. (3)
192. Excessive hours of work, insufficient sleep, right inguinal hernia, eczematoid ringworm of feet, corns. (5)
193. Excessive coca-colas, obesity, dental infection, diabetes mellitus, tinea versicolor. (5)
194. Obesity, hypertension, chronic infected tonsils, pyorrhea, chronic hypertensive nephritis, eczematoid ringworm of toes. (6)
195. Irregular eating, excessive sugar, left pterygium, hemorrhoids, infected tonsils. (5)
196. Too many interests, eyestrain, underweight, uterine displacement, corns, acute coryza, chronic gall-bladder disease. (7)
197. Obesity, spastic constipation, hemorrhoids, bunions, corns. (5)
198. Malnutrition, spastic constipation, hemorrhoids, anemia. (4)
199. Insufficient recreation, eyestrain, chronic infected tonsils, arrested tuberculosis, varicose veins, chronic gall-bladder disease. (6)
200. Malnutrition, insufficient food, dental caries, eyestrain, lacerated cervix, antral sinusitis, infected tonsils, excessive childbearing, anemia from miscarriage, bad air at night. (10)
201. Malnutrition, eyestrain, chronic appendicitis, bunions. (4)
202. Obesity, diabetes, corns, essential hypertension. (4)
203. Pansinusitis, exophthalmic goitre, corns. (3)
204. Eyestrain, varicose veins, hemorrhoids. (3)
205. Obesity, acute myringitis, corns. (3)
206. Malnutrition, chronic cystitis. (2)
207. Malnutrition, eyestrain. (2)
208. Malnutrition, hemorrhoids, anemia. (3)
209. Diverticuitis. eyestrain, exophthalmic goitre, hypertension. (4)
210. Tinea of skin, fibroma of abdominal wall. (2)
211. Purgative habit, anemia hypertension. (3)
212. Chronic glaucoma, frontal sinusitis, bunions. (3)
213. Insufficient sleep, excessive hours of work, pyorrhea, sclerosis of testicle (mumps), hemorrhoids, varicose veins, hypertension. (7)

214. Eyestrain, malnutrition, pyorrhea, arrested tuberculosis, hemorrhoids, anemia. (6)
215. Eyestrain, eczematoid ringworm of feet. (2)
216. Malnutrition, eyestrain, ingrowing toe nails, hemorrhoids. (4)
217. Eyestrain, dental caries, left pyosalpina, anemia. (4)
218. Eyestrain, cystocole, lacerated cervix, systitis, pyelitis, corns, bunions, weak arches, eosinophilia. (9)
219. Excessive hours of work and cigarettes, insufficient sleep, malnutrition, tabes dorsalis, arrested tuberculosis, pyuria. (7)
220. Obesity, novocain dermatitis, eczematoid ringworm of toes. (3)
221. Unbalanced diet, excessive cigarettes, unilateral deafness, pleuropericardial adhesions. (4)
222. Eyestrain, pyorrhea, hemorrhoids, corns and calluses of feet. (5)
223. Eyestrain, dental sepsis, lax abdominal walls, abdominal adhesions, hemorrhoids. (5)
224. Dental infection, hypertrophied prostate. (2)
225. Excessive cigarettes, deaf in right ear, bad round shoulders, flat feet, ingrowing toe nails. (5)
226. Excessive hours of work and tobacco, insufficient sleep, inguinal hernia, chronic gall-bladder disease, hard tender prostate. (6)
227. Excessive tobacco, chronic infected tonsils, eosinophilia. (3)
228. Obesity, eyestrain, dental infection, renal calculus, corns. (5)
229. Obesity, multiple fibremata, anemia. (3)
230. Hypertrophied prostate, hemorrhoids, right inguinal hernia, varicose veins, hammer toes. (5)
231. Undeveloped optic nerve, acne vulgaris, excessive tobacco, right inguinal hernia, hammer toes. (5)
232. Obesity, pyuria. (2)
233. Excessive tobacco, malnutrition, eyestrain, dental infection, enlarged tonsils, corns bunions. (7)
234. Chronic appendicitis, hypertrophied prostate. (2)
235. Dental infection, glass eye, testicle gone (removed for tuberculosis), cirrhosis of liver, chronic appendicitis. (5)
236. Excessive tobacco, malnutrition, dental caries, mitral regurgitation, angina pectoris. (5)
237. Excessive tobacco, malnutrition, chronic appendicitis, corns, chronic cystitis. (5)
238. Eyestrain, pterygia, chronic infected tonsils, dental infection, strained arch of right foot, pyelitis, renal calculus. (7)
239. Paroxysmal tachycardia, chronic appendicitis, hemorrhoids, varicose veins, dental infection, diabetes mellitus. (6)
240. Eyestrain, wen of scalp, pyorrhea, hypertrophied prostate, chronic appendicitis, hemorrhoids, crowded toes, corns. (8)
241. Chronic infected tonsils, chronic appendicitis. (2)
242. Eyestrain, chronic infected tonsils, dental infection, excessive hours of work, insufficient sleep. (5)
243. Obesity, pyorrhea, hypertrophied prostate. (3)
244. Eyestrain, pulmonary tuberculosis, mitral regurgitation, inguinal hernia, webbed toes. (5)
245. Excessive hours of work, dental infection, hypertrophied prostate. (3)
246. Malnutrition, dental caries, pulmonary tuberculosis. (3)
247. Eyestrain, chronic gall-bladder disease, weak arches, glycosuria. (4)
248. Malnutrition, acne vulgaris, chronic infected tonsils, corns. (4)
249. Obesity, chronic gall-bladder disease. (2)
250. Malnutrition, dental infection, chronic hypertensive nephritis, hypertrophy of heart, salpingitis, pelvic cellulitis, lacerated cervix, varicose veins, psychic trauma (husband convicted of being father of negro baby). (9)
251. Dental infection, hypertrophied prostate. (2)
252. Dental infection. (1)
253. Refractive error, tinea versicolor, fibroma of skin, chronic appendicitis, atrophy of right testicle due to mumps, dental infection. (6)

254. Malnutrition, probable carcinoma of prostate and liver, dilateral femoral hernia. (4)
255. Corns, cramped toes, eyestrain. (3)
256. Malnutrition, dental infection, functional gaseous distension of abdomen. (3)
257. Acute laryngitis, chronic appendicitis, eczematoid ringworm of toes. (3)
258. Acne rosacea, large pigmented mole, hypertrophied prostate, sunburn. (4)
259. Deflected nasal septum, dental caries, hypertrophied prostate, flat feet. (4)
260. Excessive tobacco, chronic appendicitis. (2)
261. Eyestrain, chronic fatigue, dental caries, corns. (4)
262. Obesity, fibroma of back, right inguinal hernia, eczematoid ringworm of toes. (4)
263. Excessive tobacco, ingrowing toenail. (2)
264. Unbalanced diet, eyestrain, infected tonsils, bilateral salpingitis. (4)
265. Carcinoma of rectum. (1)
266. Dental infection, acute coryza, flat feet, hemorrhoids. (4)
267. Stye, dental infection, chronic infected tonsils, corns, umbilical hernia. (5)
268. Excessive coffee, bilateral deafness, bilateral inguinal hernia, glossitis, squamous eczema, chronic prostatitis. (6)
269. Eyestrain, dental caries, protatitis, chronic cystitis. (4)
270. Myocardial weakness, extrasystoles, chronic fibroid phthisis, subacute appendicitis. (4)
271. Excessive coca-colas and tobacco, eyestrain, dental caries, chronic infected tonsils, arrested tuberculosis, left inguinal hernia, hypertrophied prostate, glycosuria, hammer toes. (10)
272. Chronic dental infection, Raynaud's disease, eyestrain, anxiety neurosis. (4)
273. Excessive alcohol and tobacco, insufficient outdoor exercise, hypotrophied prostate, ingrowing toenails. (5)
274. Excessive work, insufficient sleep, large amount of wax in ears, deaf in left ear, acute pharyngitis, thickened right pleura, eczematoid ringworm of toes, hemorrhoids. (8)
275. Enlarged tender uterus—cause undetermined, cystocele, eyestrain. (3)
276. Excessive tobacco, obesity, diastolic hypertension, chronic appendicitis, excessive work, insufficient sleep. (6)
277. Atrophy of right testicle (mumps), hemorrhoids. (2)
278. Granular pharyngitis, hypertrophied turbinates. (2)
279. Obesity, dental caries, essential hypertension, hypertrophy of heart, hemorrhoids, flat feet. (6)
280. Deaf in left ear, dental caries, chronic constipation, sick headaches, corns, diastolic hypertension, sacroiliac strain. (7)
281. Arteriosclerosis, obesity. (2)
282. Malnutrition, too much work and little sleep, spastic constipation, chronic morphinism, chronic hypertensive nephritis, chronic infection of tonsils, excessive tobacco, coca-cola and coffee, multiple hemangiomata and fibromata of skin. (12)
283. Obesity, chronic hypertensive nephritis, wen of scalp. (3)
284. Deaf in right ear, dental infection, kyphosis, arrested right apical tuberculosis, surgical kidney (tb.?) with hematuria and secondary anemia, varicose veins of left leg. (7)
285. Excessive alcohol, eyestrain, urethral stricture, pyuria. (4)
286. Hypertension, ingrowing toenails, pyorrhea, early tabes dorsalis. (4)
287. Abdominal adhesions. (1)
288. Excessive tobacco, obesity, pyorrhea, vitiligo, multiple fibromata of skin, eczematoid ringworm of toes, chronic gall-bladder disease. (7)
289. Eyestrain, hypotension, insufficient exercise and recreation, hypertrophied prostate, sacroiliac strain. (6)
290. Mulnutrition, deaf in left ear. (2)
291. Too much work and little sleep, angina pectoris. (3)

292. Excessive coffee and alcohol, chronic infection of tonsils, intercostal neuritis, arteriosclerosis, hypertension. (6)
293. Too much work and little sleep, excessive cigarettes, eyestrain, hemorrhoids, chronic malaria. (6)
294. Bad dental infection, angina pectoris, obesity. (3)
295. Hypertrophied tonsils, round shoulders, acute cold. (3)
296. Bad eyestrain, malnutrition, hypertrophied and infected tonsils, phimosis. (5)
297. Chronic hypertensive nephritis, chronic infection of tonsils. (2)
298. Eyestrain, marked asymmetric pigion breast. (2)
299. Slightly deaf in right ear, hypertrophied tonsils and adenoids, phimosis. (4)
300. Chronic infection of tonsils. (1)
301. Eczematoid ringworms of toes and groin, obesity, chronic hypertensive nephritis, fever of undetermined origin. (5)
302. Eyestrain, infected tonsils, arrested tuberculosis. (3)
303. Infected tonsils, eyestrain. (2)
304. Eyestrain, infected foot. (2)
305. Infected foot, atrophy of leg from old polio. (2)
306. Eyestrain, infected tonsils. (2)
307. Severe acne, large moles, chronic appendicitis. (3)
308. Eczematoid ringworm of toes, round shoulders. (2)
309. Round shoulders, eyestrain. (2)
310. Eyestrain, slightly deaf in left ear, infected tonsils, cystitis, nephritis, hydrocele of spermatic cord. (6)
311. Astigmatism and pyorrhea. (2)
312. Deaf in left ear, phimosis. (2)
313. Slightly deaf in left ear, infected tonsils, round shoulders. (3)
314. No physical defects found. Several bad defects in habits—enough to cause commitment to Eastern Carolina Training School.
315. Badly stained teeth. (1)
316. Eyestrain, hypertension, round shoulders, scabies, bad phimosis. (5)
317. Constipation, malnutrition, hypertrophied and infected tonsils, eyestrain. (5)
318. Broken incisor tooth. (1)
319. Infected tonsils, extensive scarring of left arm and chest from electric burn, crowded toes. (3)
320. Eyestrain, large mole, accidental vaccination scar on abdomen. (3)
321. Pyorrhea, large moles, infected finger. (3)
322. Malnutrition, eyestrain, dental caries, hypertrophied and infected tonsils, tinea versicolor. (6)
323. Infected tonsils, ingrowing toenails. (2)
324. Dental caries, ingrowing toenails. (2)
325. Hypertrophied tonsils, infected scratches on legs. (2)
326. Astigmatism, pyorrhea, corn, tender below left ear—cause undetermined. (4)
327. Pyorrhea, tachycardia, of uncertain origin—probably psychoneurotic. (2)
328. Glycosuria, astigmatism. (2)
329. Astigmatism, glycosuria, albuminuria—cause undetermined, infected remains of tonsils supposed to have been removed. (4)
330. Round shoulders, phimosis, infected sore on left ankle, chronic malaria. (4)
331. Eyestrain, greatly hypertrophied and infected tonsils, glycosuria, albuminuria, dental infection. (6)
332. Acute cold, pyorrhea. (2)
333. Infected tonsils, dental caries, acne, crowded toes. (4)
334. Eyestrain. (1)
335. Obesity, hypertension. (2)
336. Eyestrain. (1)
337. Eyestrain, enlarged veins in upper part of chest—cause undetermined, crowded toes. (3)
338. Round shoulders, crowded toes. (2)

339. Eyestrain, chronic appendicitis, elongated prepuce, infected foot. (4)
340. Eyestrain, hypertrophied and infected tonsils, round shoulders. (4)
341. Round shoulders, many moles, acute nephritis. (3)
342. Mitral regurgitation, round shoulders, multiple fibromata of right foot, eyestrain,. mental deficiency. (5)
343. Eyestrain, round shoulders, infected tonsils. (3)
344. Eyestrain, chapped lips, mental deficiency. (3)
345. Eyestrain, tenderness over right mastoid—cause undetermined, infected tonsils. (3)
346. Eyestrain, congenital syphilis. (2)
347. Hypertrophied tonsils. (1)
348. Eyestrain, pyorrhea, deaf in left ear, round shoulders, eczematoid ringworm of toes, crowded toes. (6)
349. Round shoulders, crowded toes. (2)
350. Infected tonsils, adenoids, nephritis. (3)
351. Round shoulders. (1)
352. Infection of face, boil on forearm. (2)
353. Round shoulders, eyestrain. (2)
354. Round shoulders. (1)
355. Round shoulders, acne. (2)
356. Round shoulders. (1)
357. Eyestrain, varicocele. (2)
358. Infected tonsils, broken teeth. (2)
359. Eyestrain, scar contracture of fingers. (2)
360. Excessive coca-colas, acne, crowded toes, corns. (4)
361. Glycosuria, eyestrain, obesity. (3)
362. Sleeps with windows shut, too much greasy food, obesity, antral sinusitis, pyorrhea, eyestrain, diastolic hypertension, hypertrophied prostate. (8)
363. Obesity, too much work and little sleep, chronic appendicitis. (3)
364. Dental infection, eyestrain, round shoulders, multiple fibromata of skin, left inguinal hernia, hemorrhoids, chronic nephritis. (7)
365. Eyestrain, dental infection, hypertension, lipoma of back, atheroma of aorta, corns. (6)
366. Obesity, eyestrain, hypertrophied prostate, eczematoid ringworm of toes. (4)
367. Excessive cigarettes, infected tonsils, acne. (3)
368. Eyestrain, multiple fibromata of skin. (2)
369. Needs typhoid vaccine, chronic appendicitis. (2)
370. Eyestrain, obesity, excessive hours of work. (3)
371. Obesity, eyestrain, diastolic hypertension, crippled right foot (trauma). (4)
372. Too much work and little sleep, malnutrition, eyestrain, left antral sinusitis, dental caries, chronic gall-bladder disease, right inguinal hernia. (8)
373. Excessive alcohol and cigarettes, slightly deaf in left ear, dental infection, corn, exophthalmic goitre. (6)
374. Arteriosclerosis, hypertrophied heart, chronic hypertensive nephritis, hemorrhoids, tobacco amblyopia. (5)
375. Too much work and little recreation, eyestrain, flat feet, ingrowing toenails, hypertension. (6)
376. Eyestrain, round shouldered, corns. (3)
377. Obesity, multiple hemangiomata of skin, hemorrhoids, varicose veins, hypertension, tenderness in left hypochondrium—cause undetermined. (6)
378. Excessive cigarettes, eyestrain, pyorrhea, thickened pleura, arrested tuberculosis, chronic malaria, varicose veins. (7)
379. Eyestrain, obstructive spur on nasal septum, hemorrhoids, varicose veins. (4)
380. Eyestrain, callus of foot, malnutrition. (3)
381. Hypertension, multiple hemangiomata of skin, hemorrhoids, eyestrain. (4)
382. Needs smallpox vaccination, obesity, pyorrhea. (3)

383. Paranoid psychosis of some type (examination incomplete). (1)
384. Deaf in right ear, chronic gall-bladder disease, hypertension. (3)
385. Arteriosclerosis, multiple lipomata of skin, very bad hemorrhoids, chronic arthritis of knee—cause undetermined. (4)
386. Eyestrain, round shoulders, left antral sinusitis, hypertrophied prostate, acute cystitis. (5)
387. Insufficient sleep, perforated nasal septum, acute left frontal sinusitis, deaf in right ear, myocardial weakness from recent influenza (declined rectal and genital examination). (5)
388. Excessive coca-colas and cigarettes, uticaria, eyestrain, dental infection, round shoulders, chronic appendicitis, bad hemorrhoids. (8)
389. Excessive work, eyestrain, enlarged inferior turbinate, emphysema, obesity, congenital absence of knee-jerks (noted 20 years ago by neurologist who, after prolonged study, made diagnosis of "damned curiosity"). (6)
390. Malnutrition, unbalanced and improper diet, deaf in right ear, blind in right eye with external strabismus, dental infection, hypertrophied prostate, weak arches in feet. (8)
391. Excessive tobacco, malnutrition, sebaceous cyst of back. (3)
392. Excessive alcohol and tobacco, keratotic spot on neck, varicocele, eyestrain. (5)
393. Excessive hours of work, malnutrition, hypertrophied prostate, ingrowing toenail, deaf in left ear. (5)
394. Insufficient exercise, albuminuria probably due to recent influenza, multiple hemangiomata of skin, slight hypertension. (4)
395. Too much work and little sleep, chronic constipation, anal fissure, sub-acute tracheobronchitis due to recent influenza, eczematoid ringworm of toes. (6)
396. Excessive work, coffee, and coca-cola, chronic pharyngitis and blepharitis, eyestrain, atrophied testicle due to mumps, chronic appendicitis, hemorrhoids. (9)
397. Too much work and coca-colas, too little sleep and recreation, hematuria of unknown origin, chronic periostitis of tibia. (6)
398. Excessive work, hypertension, functional heart murmur, fistula in ano. (4)
399. Bad eyestrain and dental infection, chronic appendicitis, bunions, hemorrhoids. (5)
400. Excessive tobacco, eyestrain, pigmented fibromata of skin, dental infection. (4)
401. Excessive coca-colas and tobacco, chronic constipation, eyestrain, tomato eruption, myocardial weakness. (6)
402. Pyorrhea, obesity, large moles, elongated prepuce, hemorrhoids, psycho-neurotic personality. (6)
403. Fibroma of skin near anal margin, corns, hammer toe. (3)
404. Obesity, renal calculus, varicocele. (3)
405. Right anal sinusitis, chronic gall-bladder disease, hemorrhoids, excessive fried food, slight deafness in both ears. (5)
406. Chronic hypertensive nephritis, refractive error, round shoulders, pyorrhea, secondary anemia, bad pigmented moles, hypertrophied prostate, hemorrhoids. (8)
407. Astigmatism, albuminuria—cause unknown, fibroma of left arm. (3)
408. Too much work and little sleep, refractive error, psoriasis, extrasystoles, jagged teeth. (6)
409. Malnutrition, eczematoid ringworm of toes, hemorrhoids, constipation. (4)
410. Elongated uvula, needs typhoid vaccine, obesity, glycosuria, anemia—cause undetermined. (6)
411. Refractive error, multiple hemangiomata of skin, corns. (3)
412. Eyestrain, pyorrhea, webbed toes. (3)
413. Pyorrhea, crowded toes, hemorrhoids, eyestrain. (4)
414. Obesity, refractive error, moles, eczematoid ringworm of toes. (4)
415. Malnutrition, refractive error, atheroma of aorta, arteriosclerosis. (4)
416. Lipoma of neck, eczematoid ringworm of toes, refractive error. (3)

417. Malnutrition, round shoulders, bilateral cataract (?), hemorrhoids. (4)
418. Excessive tobacco, fibroma of neck, hemorrhoids, congenital deformity of toe—family trait—little toe superimposed on 4th toe. (4)
419. Refractive error, adenoids, round shoulders, malnutrition. (4)
420. Refractive error, malnutrition, round shoulders. (3)
421. Obesity, dental infection, keratotic moles, crowded toes. (4)
422. Glycosuria, hypertension, extrasystoles, right inguinal hernia. (4)
423. Excessive coca-colas and cigarettes, astigmatism, many moles, hypertrophied and infected tonsils. (6)
424. Obesity, hypertension, moles, hemorrhoids. (4)
425. Fibroma of skin, sleeps with windows shut, bilateral inguinal hernia. (3)
426. Excessive cigarettes, chronic constipation, hemangioma of glans penis, varicose veins of legs. (4)
427. Round shoulders, deficient sleep and exercises, irregular habits of eating, excessive alcohol, cigarettes, and venery, malnutrition, dental infection, astigmatism, chronic gonorrhea. (11)
428. Multiple punctuate hemangiomata of skin, moles, refractive error, round shoulders, chronic prostatitis. (5)
429. Needs smallpox vaccination, large moles, flat feet, albuminuria cause undetermined, obesity. (5)
430. Obesity, refractive error, dental infection, chronic appendicitis, hemorrhoids, hydrocele of spermatic cord. (6)
431. Refractive error, acne vulgaris, epigastric tenderness with right rectus rigidity—cause undetermined. (3)
432. Dental infection, chronic gall-bladder disease, bad varicose veins of legs. (3)
433. Diastolic hypertension, bilateral deafness, dental infection, eczema of buttocks, eczematoid ringworm of toes, myocardial weakness, secondary anemia. (7)
434. Hypertension, pyorrhea, multiple fibromata of skin, adherent prepuce. (4)
435. Hypertension, infected tonsils, bilateral deafness, refractive error, eczematoid ringworm of toes, chronic gall-bladder disease. (6)
436. Refractive error. (1)
437. Refractive error, slight albuminuria—cause undetermined, excessive carbohydrate diet. (3)
438. Excessive tobacco, dental infection, refractive error, hypertrophied prostate, hemorrhoids. (5)
439. Refractive error, obesity, pelvic lacerations, dental infection, too little sleep, corns, weak transverse arch of foot. (7)
440. Excessive coffee, chronic hypertensive nephritis, deaf in right ear, right antral sinusitis, dental infection, refractive error, pyelitis, hemorrhoids. (8)
441. Obesity, ichthyosis, vitiligo, arteriosclerosis, dental infection, black mole, kyphosis, incomplete right inguinal hernia, very large hemorrhoids, refractive error. (10)
442. Too long hours of work, too little sleep, unbalanced diet, excessive tobacco, refractive error, renal calculus. (6)
443. Too long hours of work, too little sleep, needs smallpox vaccination, refractive error. (4)
444. Excessive tobacco, malnutrition, round shoulders (severe grade), hemorrhoids, constipation, refractive error. (6)
445. Iritis. (1)
446. Excessive tobacco and alcohol, refractive error, hemorrhoids. (4)
447. Diastolic hypertension, hemorrhoids. (2)
448. Obesity, too little exercise, multiple fibromata of skin, hemorrhoids. (4)
449. Excessive coca-colas, hypertension, refractive error, multiple fibromata and hemangiomata, moles. (6)
450. Fefractive error, acne vulgaris (severe), calluses of feet. (3)

451. Needs smallpox vaccination, refractive error, pyorrhea, fissure in ano, varicose veins of legs, infected tonsils, albuminuria probably due to tonsils. (7)
452. Refractive error, chronic appendicitis, retroverson, lacerated cervix, dental infection. (5)
453. Refractive error, eczematoid ringworm of feet. (2)
454. Insufficient sleep, infected tonsils, refractive error. (3)
455. Excessive coffee, refractive error, renal glycosuria, chronic appendicitis, pyogenic eruption of buttocks, squamous eczema of soles of feet. (6)
456. Refractive error, obesity, chronic gall-bladder disease, hypertension. (4)
457. Excessive coca-colas, refractive error, obstructive deflection of nasal septum, myocardial weakness, crowded toes, tenderness over left mastoid—cause undetermined. (6)
458. Obesity, refractive error, pterygium, pyorrhea, bunions, hypertension. (6)
459. Obesity, secondary anemia, chronic malaria, infected tonsil stumps, chronic right frontal sinusitis. (5)
460. Excessive tobacco, round shoulders (marked), eczematoid ringworm of toes, crowded toes, albuminuria—cause undetermined. (5)
461. Excessive tobacco, hereditary tremor of chin, dental infection, acne vulgaris—severe. (4)
462. Obesity, refractive error, eczematoid ringworm of feet. (3)
463. Excessive tobacco, malnutrition, refractive error, dental infection, pulmonary tuberculosis—active, chronic appendicitis, umbilical hernia, bunions, corns, calluses of feet, secondary anemia. (11)
464. Too long hours of work and little sleep, excessive tobacco, chronic eczema of brany type, crowded toes, secondary anemia. (6)
465. Obesity, dental infection, refractive error. (3)
466. Malnutrition, myocardial weakness, hammer toes, insufficient sleep. (4)
467. Excessive tobacco, refractive error, right exophoria, right incomplete inguinal hernia, left undescended testicle, hemorrhoids, diastolic hypertension, corns. (8)
468. Refractive error, fissure in ano, effort syndrome. (3)
469. Atrophy of right testicle due to mumps, atrophy of left leg and crippling of both feet due to old poliomyelitis, refractive error, secondary anemia. (5)
470. Insomnia, excessive coffee and tobacco, constipation, insufficient recreation, deaf in both ears, refractive error, moles, chronic appendicitis, hemorrhoids, fistula in ano, corns. (12)
471. Excessive tobacco and alcohol, chronic appendicitis, refractive error, hemorrhoids, varicocele. (6)
472. Excessive alcohol, varicose veins of legs, weak transverse arch of left foot, congenital unilateral exophthalmos. (4)
473. Obesity, sleeps with windows shut, needs typhoid vaccine, refractive error. (4)
474. Refractive error. (1)
475. Diabetes, pulmonary tuberculosis, refractive error, fibroma of skin, tinea versicolor, flat feet, musculospiral neuritis, dental infection, secondary anemia. (9)
476. Anxiety neurosis, urethal stricture (partial exam., only). (2)
477. Obesity, multiple punctate hemangiomata of skin, too long hours of work, and little sleep. (4)
478. Obesity, dental infection, chronic appendicitis, hemorrhoids, eczematoid ringworm of toes. (5)
479. Too long hours of work, too little sleep and recreation, dental infection, chronic prostatitis. (5)
480. Refractive error, toxic ademona of thyroid, tender knees—cause undetermined. (3)
481. Too long hours of work and little sleep, obesity, obstructive deflection of nasal septum, angina pectoris. (5)
482. Obesity, diastolic hypertension, right chronic epididymitis, corns. (4)

483. Excessive tobacco, refractive error, deaf in left ear, dental infection, phimosis, hypertrophy of prostate. (6)
484. Too long hours of work and little sleep, badly fitting dental plates, refractive error, hemorrhoids, secondary anemia, varicose veins of legs, eczematoid ringworm of feet. (8)
485. Dental infection, diastolic hypertension, hemorrhoids, albuminuria—cause undetermined. (4)
486. Obesity, excessive tobacco, ingrowing toenails. (3)
487. Excessive wax in ears, black mole, eczematoid ringworm of feet. (3)
488. Excessive tobacco, refractive error, acute pharyngitis. (3)
489. Refractive error, diabetes, unilateral blindness, unilateral deafness. (4)
490. Refractive error, pyorrhea, excessive tobacco. (3)
491. Left antral sinusitis, chronic appendicitis, eczematoid ringworm of feet. (3)
492. Needs vaccination for smallpox, hypertension, refractive error, hypertrophy of tonsils. (4)
493. Excessive tobacco, obstructive deflection of nasal septum, hypertrophied prostate, pyorrhea. (4)
494. Round shoulders, marked, dental infection, slightly dilated heart from recent long distance swimming race, arrested pulmonary tuberculosis, refractive error. (5)
495. Refractive error, loose filling in tooth, infected tonsils, phimosis, eczematoid ringworm of toes and groin, atrophy of testicle due to mumps. (7)
496. Infected tonsils, hemorrhoids. (2)
497. Excessive tobacco, refractive error, spongy gums, polyp of left antrum, painful exostosis of tibia, chronic appendicitis, ingrowing toenails, eczematoid ringworm of feet, tobacco heart. (9)
498. Excessive tobacco, refractive error, dental infection, hemorrhoids. (4)
499. Refractive error, insufficient sleep, mucous colitis. (3)
500. Needs vaccination for smallpox, obesity, refractive error, dental infection. (4)
501. Needs vaccination for smallpox, refractive error, dental infection, hypertension. (4)
502. Refractive error, dental infection, black mole, multiple hemangiomata of skin, hemorrhoids, hypertrophied prostate. (6)
503. Excessive tobacco, malnutrition, dental infection, refractive error, varicose veins of legs, hammer toes. (6)
504. Refractive error, eczematoid ringworm of feet, corns. (3)
505. Excessive tobacco, insufficient exercise, deflected nasal septum, left antral sinusitis, refractive error, chigger bites, surgical kidney, weak arch right foot, calluses of feet. (9)
506. Refractive error, hemorrhoids, deaf in both ears, corns and calluses of feet. (5)
507. Refractive error, albuminuria—cause undetermined, dental infection, corns. (4)
508. Excessive tobacco, deaf in both ears, dental infection, dynamic aorta. (4)
509. Diabetes, obesity, hypertension, deaf in both ears, refractive error, extrasystoles. (6)
510. Excessive coffee and tobacco, obesity, diastolic hypertension, dental infection, refractive error, crowded toes, seborrhoic eczema of scalp. (8)
511. Excessive tobacco, refractive error, dental infection, hypertension. (4)
512. Excessive tobacco, corneal scar, traumatic cataract, external strabismus, renal calculus. (5)
513. Excessive tobacco, insufficient sleep, malnutrition, dental infection. (4)
514. Chronic gall-bladder disease, eczematoid ringworm of feet. (2)
515. Round shoulders—marked, mole, albuminuria—cause undetermined. (3)

516. Tuberculous sinus over right ilium, eczematoid ringworm of toes. (2)
517. Malnutrition, nasal obstruction—type undetermined, right frontal sinusitis. (3)
518. Needs smallpox and typhoid vaccine, refractive error, bilateral pterygia, paresis of right side of face—cause undetermined, moles, hypertension. (7)
519. Hay fever, constipation, hemorrhoids. (3)
520. Dental infection, intercostal neuritis, corns, prolapse of uterus, cystocele. (5)
521. Dental infection, refractive error, acne vulgaris—severe, moles, eczematoid ringworm of feet, weak arch of left foot, chronic sacroiliac arthritis. (7)
522. Excessive tobacco and alochol, purgative habit, obesity, dental infection, spastic paraplegia—cause undetermined, weak transverse arches of feet, refractive error, hemorrhoids. (9)

DIAGNOSES ON PHYSICIANS IN NORTH CAROLINA MADE IN THE DEMONSTRATION CLINICS

1. Hemorrhoids (1).
2. Chronic hypertensive nephritis (1).
3. Obesity (1).
4. Arrested tuberculosis (1).
5. Extrasystoles (1).
6. Obesity and hypertension (2).
7. Obesity (1).
8. Dental infection and hypertrophied prostate (2).
9. Arrested t. b., blepharitis, dental infection, hemorrhoids, diabetes (5).
10. Malnutrition, deafness (2).
11. Hemorrhoids, dental infection (2).
12. Varicose veins of legs, excessive cigarettes, malnutrition, bronchiectasis (4).
13. Refractive error, chronic appendicitis, chronic prostatitis (3).
14. Excessive tobacco, refractive error, deflected nasal septum, dental infection, gall-bladder disease, pyelitis, atrophy of testicle (mumps) (7).
15. Convalescent from gall-bladder and appendix operation, refractive error, malnutrition (3).
16. Too long hours of work, insufficient sleep, excessive cigarettes, many moles, atrophied testicle from mumps, varicocele, corns, diabetes, dental infection (9).
17. Excessive tobacco, obesity, chronic appendicitis (3).
18. Tendency to prolapse of rectum (1).
19. Obesity, eczematoid ringworm of axillae, groin, and feet (4).
20. Possible tuberculosis of appendix, median bar hypertrophy of prostate, chronic cystitis, chronic fibroid phthisis (slightly active), chronic gastritis, bunion of left foot (6).
21. Refractive error, right apical tuberculosis, chronic appendicitis, bunions, double club feet—have been operated on, excessive tobacco (6).
22. Excessive alcohol and tobacco, bilateral pterygia, acute coryza (4).
23. Obesity, dental infection, emphysema, arrested t.b., arteriosclerosis with lesion of brain causing paralysis of left side of tongue (6).
24. Too long hours of work, too little sleep, excessive tobacco, probable cirrhosis of liver, hammer toes, hemorrhoids (6).
25. Too long hours of work, too little sleep, hypertrophied prostate, varicose veins of legs, infected tonsils, dental infection (6).
26. Malnutrition, dental infection, infected tonsils, chronic fibroid phthisis (slightly active), hammer toes, corns, weak transverse arches, refractive error (8).

27. Too long hours of work, too little sleep, stained teeth, right inguinal hernia, eczematoid ringworm of feet, corns (6).
28. Refractive error, varicose veins of legs, internal hemorrhoids (3).
29. Too long hours of work, too little sleep, hypertension, dental infection, atrophy of testicle (mumps), hemorrhoids, varicose veins of leg (7).
30. Refractive error, eczematoid ringworm of feet (2).
31. Too long hours of work, too little sleep, excessive tobacco, malnutrition, congenital absence of knee jerks, arrested t.b., pyuria—origin undetermined (7).
32. Too long hours of work, too little sleep, excessive tobacco, right inguinal hernia, chronic gall-bladder disease, hard tender prostate—pathology undetermined (6).
33. Excessive tobacco, infected tonsils, eosinophilia—cause undetermined (3).
34. Hypertrophied prostate, right inguinal hernia, varicose veins of legs, hammer toes. (4)
35. Undeveloped optic nerve, stained teeth, acne vulgaris—severe, excessive tobacco, right inguinal hernia, hammer toes (6).
36. Chronic appendicitis, hypertrophied prostate (2).
37. Dental infection, excessive tobacco, mitral regurgitation, angina pectoris (4).
38. Paroxysmal tachycardia, chronic appendicitis, hemorrhoids, varicose veins of legs, dental sepsis, diabetes (6).
39. Obesity, chronic gall-bladder disease (2).
40. Tartar on teeth, hypertrophied prostate (2).
41. Too little sleep, dental infection (2).
42. Acute laryngitis, chronic appendicitis, eczematoid ringworm of feet (3).
43. Acne rosacea, large mole, hypertrophied prostate, sunburn (4).
44. Excessive tobacco, chronic appendicitis (2).
45. Refractive error, chronic fatigue, dental infection, corns (4).
46. Obesity, diastolic hypertension, hemorrhoids, chronic polyarthritis (4).
47. Obesity, fibroma of back, right inguinal hernia, eczematoid ringworm of feet (4).
48. Ingrowing toenail, stained teeth, excessive tobacco (3).
49. Myocardial weakness, extrasystoles, chronic fibroid phthisis (slightly active), subacute appendicitis (4).
50. Dental infection, Raynaud's disease, refractive error (3).
51. Too long hours of work, too little sleep, excessive wax in ears, deaf in left ear, acute pharyngitis, thickened right pleura, eczematoid ringworm of feet, chronic gall-bladder disease (8).
52. Too long hours of work, too little sleep, excessive tobacco, extrasystoles, diastolic hypertension, chronic appendicitis, obesity (7).
53. Obesity, dental infection, atrophy of right testicle (mumps), hemorrhoids (4).
54. Excessive tobacco, obesity, dental infection, vitiligo, multiple fibromata of skin, eczematoid ringworm of feet, chronic gall-bladder disease (7).
55. Chronic hypertensive nephritis, spastic constipation, infected tonsils, excessive tobacco, coca-colas and coffee, multiple hemangiomata and fibromata of skin, chronic morphinism (9).
56. Too long hours of work, too little sleep, angina pectoris (3).
57. Obesity, too long hours of work, too little sleep, chronic appendicitis (4).
58. Obesity, refractive error, hypertrophied prostate, eczematoid ringworm of feet (4).
59. Too long hours of work, too little sleep, malnutrition, refractive error, left antral sinusitis, dental infection, chronic gall-bladder disease, right inguinal hernia (8).
60. Arteriosclerosis, hypertrophied heart, chronic hypertensive nephritis, hemorrhoids, tobacco amblyopia (5).

61. Refractive error, spur on nasal septum, hemorrhoids, varicose veins of legs (4).
62. Paranoid psychosis? (examination incomplete) (1).
63. Deaf in right ear, chronic gall-bladder disease, hypertension (3).
64. Adenoids, varicose veins of left leg, bronchial asthma (3).
65. Excessive alcohol and tobacco, keratotic spot on neck, varicocele, refractive error (5).
66. Insufficient exercise, multiple hemangiomata of skin, hypertension, albuminuria due to recent influenza (4).
67. Excessive work, insufficient sleep, chronic constipation, fissure in ano, subacute tracheobronchitis, eczematoid ringworm of feet (6).
68. Excessive work, coca-cola and coffee, chronic pharyngitis and blepharitis, refractive error, atrophied testicle (mumps), chronic appendicitis, hemorrhoids (9).
69. Excessive work, obesity, functional heart murmur (3).
70. Obesity, renal calculus, varicocele (3).
71. Too much work and little sleep, refractive error, psoriasis, extrasystoles, jagged teeth (6).
72. Obesity, moles, refractive error, eczematoid ringworm of feet (4).
73. Malnutrition, refractive error, atheroma of aorta, arteriosclerosis, hypertrophied prostate, pruritis ani, corns (7).
74. Lipoma of back of neck, refractive error, eczematoid ringworm of feet (3).
75. Malnutrition, round shoulders, bilateral cataract, hemorrhoids (4).
76. Obesity, dental infection, keratotic moles, crowded toes (4).
77. Excessive coca-colas and tobacco, many moles, hypertrophied and infected tonsils, refractive error (6).
78. Obesity, ichthyosis, vitiligo, arteriosclerosis, dental infection, black moles, kyphosis, right inguinal hernia, hemorrhoids, refractive error (10).
79. Excessive tobacco and alcohol, refractive error, hemorrhoids (4).
80. Diastolic hypertension, hemorrhoids (2).
81. Obesity, refractive error, eczematoid ringworm of feet (3).
82. Obesity, secondary anemia, chronic malaria, infected tonsil stumps, chronic right frontal sinusitis, chronic constipation, pigmented fibroma of right arm (7).
83. Too much work and cigarettes, too little sleep, chronic eczema, crowded toes, secondary anemia (6).
84. Atrophy of right testicle (mumps), atrophy of left leg, and both feet crippled (old Polio. effects), refractive error, secondary anemia (5).
85. Diabetes, musculospiral neuritis diffuse, pulmonary tuberculosis, refractive error, fibroma of skin, tinea versicolor, flat feet, dental infection, secondary anemia (9).
86. Anxiety neurosis, urethral stricture (partial exam. only) (2).
87. Too long work and little sleep, multiple punctate hemangiomata of skin, obesity (4).
88. Obesity, chronic appendicitis, dental infection, hemorrhoids, eczematoid ringworm of feet (5).
89. Too long work, too little sleep and recreation, dental infection, chronic prostatitis, corn (6).
90. Too long work, too little sleep, and recreation, obesity, deflected nasal septum, angina pectoris (6).
91. Too long work and little sleep, secondary anemia, hemorrhoids, eczematoid ringworm of feet, varicose veins of legs, refractive error, badly fitting dental plates (8).
92. Excessive wax in ears, black mole, eczematoid ringworm of feet (3).
93. Excessive tobacco, refractive error, dental infection (3).
94. Left antral sinusitis (chronic), chronic appendicitis, eczematoid ringworm of feet (3).
95. Refractive error, loose filling in tooth, infected tonsils, phimosis, eczematoid ringworm of feet and groin, atrophy of testicle (mumps), congenital absence of knee jerks (8).
96. Infected tonsils, hemorrhoids (2).

97. Excessive tobacco, refractive error, spongy gums, polyp of left antrum, painful exostosis of tibia, chronic appendicitis, ingrowing toenails, eczematoid ringworm of feet, tobacco heart (9).
98. Refractive error, dental infection, black mole, multiple hemangiomata of skin, hemorrhoids, hypertrophied prostate (6).
99. Excessive tobacco, malnutrition, refractive error, dental infection, varicose veins of legs, hammer toes (6).
100. Refractive error, eczematoid ringworm of feet, corns (3).
101. Excessive tobacco, insufficient exercise, deflected nasal septum, left antral sinusitis, refractive error, chigger bites, surgical kidney, weak transverse arch of right foot, calluses of feet. (9)
102. Refractive error, albuminuria of undetermined origin, dental infection, corns (4).
103. Excessive coffee and tobacco, obesity, diastolic hypertension, dental infection, refractive error, crowded toes, seborrheic eczema of scalp (8).
104. Excessive tobacco, corneal scar, traumatic cataract, and external strabismus of left eye, dental infection, renal calculus, hemorrhoids (7).
105. Chronic gall-bladder disease, eczematoid ringworm of feet (2).
106. Abscess over crest of right ilium, possibly tuberculosis, eczematoid ringworm of feet (2).

DEFECTS FOUND IN 106 APPARENTLY HEALTHY PHYSICIANS FROM ALL SECTIONS OF THE STATE

Defect	No. of Cases	Per Cent of Physicians Involved
Acne Rosacea	1	0.94
Acne Vulgaris, severe	1	0.94
Adenoids	1	0.94
Albuminuria due to recent Influenza	1	0.94
Albuminuria, cause undetermined	1	0.94
Alcohol, excessive	3	2.83
Anemia, secondary	5	4.72
Angina Pectoris	3	2.83
Anxiety Neurosis	1	0.94
Appendicitis, chronic	13	12.26
Appendicitis, subacute	1	0.94
Appendicitis, Tuberculous	1	0.94
Areteriosclerotic brain lesion	1	0.94
Arteriosclerosis	5	4.72
Asthma, bronchial	1	0.94
Atheroma of Aorta	1	0.94
Blepharitis	2	1.89
Bronchiectasis	1	0.94
Bunions	2	1.89
Calluses of feet	1	0.94
Cataract, Bilateral	1	0.94
Cataract, Traumatic	1	0.94
Chigger bites	1	0.94
Club Foot, bilateral, operated upon	1	0.94
Coca-Colas, excessive	3	2.83
Coffee, excessive	3	2.83
Constipation, chronic	2	1.89
Constipation, spastic	1	0.94
Convalescence from Appendectomy and Cholecystectomy	1	0.94
Corneal scar	1	0.94
Corns, severe	8	7.55

Defect	No. of Cases	Per Cent of Physicians Involved
Coryza, acute	1	0.94
Cystitis, chronic	1	0.94
Deafness, all grades	3	2.83
Dental filling loose	1	0.94
Dental infection (oral sepsis) all kinds	28	26.42
Dental plate badly fitting	1	0.94
Diabetes Mellitus	4	3.77
Eczema, chronic	1	0.94
Eczema, Seborrheic of scalp	1	0.94
Eczematoid Ringworm of Axillae	1	0.94
Eczematoid Ringworm of feet	21	19.81
Eczematoid Ringworm of groin	2	1.89
Emphysema	1	0.94
Eosinophilia, cause undetermined	1	0.94
Exercise, insufficient	2	1.89
Exostosis of Tibia, painful	1	0.94
Extrasystoles	4	3.77
Fatigue, chronic	1	0.94
Feet, flat, causing symptoms	1	0.94
Feet, weak transverse arch, bilateral	1	0.94
Feet, crippled, due to old Poliomyelitis	1	0.94
Fibroma of arm, pigmented	1	0.94
Fibroma of skin	2	1.89
Fibromata of skin, multiple	2	1.89
Fissure in Ano	1	0.94
Gastritis, chronic	1	0.94
Gall Bladder disease, chronic	8	7.55
Gums, spongy	1	0 94
Hammer toes	5	4 72
Heart, Hypertrophy of	1	0.94
Heart murmurs, functional	1	0.94
Hemangiomata, multiple punctate of skin	4	3.77
Hemorrhoids	21	19.81
Hernia, right Inguinal	7	6.60
Hypertension, essential	4	3.77
Hypertension, Diastolic only	4	3.77
Ichthyosis	1	0.94
Ingrowing toenails	2	1.89
Keratotic spot on neck	1	0.94
Kidney, surgical	1	0.94
Knee jerks, congenital absence of	2	1.89
Kyphosis	1	0.94
Laryngitis, acute	1	0.94
Leg, atrophy of, due to Poliomyelitis	1	0.94
Lipoma of back of neck	1	0.94
Liver, Cirrhosis of	1	0.94
Malaria, chronic	1	0 94
Moles, black	3	2.83
Moles, keratotic	1	0.94
Moles, large	3	2.83
Malnutrition	9	8.49
Mitral Regurgitation	1	0.94
Morphinism, chronic	1	0.94
Myocardial weakness	1	0.94
Nasal Septum, deflected and obstructive	3	2.83
Nasal Septum, obstructive spur on	1	0 94
Nephritis, chronic Hypertensive	3	2.83
Neuritis, Musculospiral	1	0.94

Defect	No. of Cases	Per Cent of Pnysicians Involved
Obesity	25	23.58
Optic nerve, undeveloped	1	0.94
Paranoid Psychosis	1	0.94
Paroxysmal Tachycardia	1	0.94
Pharyngitis, acute	1	0.94
Pharyngitis, chronic	1	0.94
Phimosis	1	0.94
Pleura, thickened	1	0.94
Polyarthritis, chronic	1	0.94
Polyp of left Antrum	1	0.94
Prostate, hard, tender, pathology undertermined	1	0.94
Prostate, hypertrophy of	10	9.43
Prostatitis, chronic	2	1.89
Pruritis ani	1	0.94
Psoriasis	1	0.94
Pterygia, bilateral	1	0.94
Pyelitis	1	0.94
Pyuria, origin undertimined	1	0.94
Raynaud's disease	1	0.94
Recreation, insufficient	2	1.89
Rectum, tendency to prolapse of	1	0.94
Refractive errors, uncorrected	34	32.08
Renal calculus	2	1.89
Shoulders, round, extreme degree	1	0.94
Sinusitis, antral, chronic	3	2.83
Sinusitis, frontal, chronic	1	0.94
Sleep, insufficient	20	18.87
Strabismus, external	1	0.94
Sunburn, acute	1	0.94
Teeth, jagged	1	0.94
Teeth, stained (no dental infection found)	3	2.83
Teeth, tartar on (no dental infection found)	1	0.94
Testicle, atrophy due to mumps	7	6.60
Tinea versicolor	1	0.94
Tobacco amblyopia	1	0.94
Tobacco, excessive	27	25.47
Tobacco heart	1	0.94
Toes, crowded from previously wearing tight shoes	3	2.83
Tonsils, hypertrophied	1	0.94
Tonsils, infected	8	7.55
Tracheobronchitis, subacute	1	0.94
Tuberculosis, pulmonary, active	5	4.72
Tuberculosis, pulmonary, arrested	4	3.77
Tuberculous abscess	1	0.94
Urethral stricture	1	0.94
Varicocele	3	2.83
Varicose veins of legs	10	9.43
Vitiligo	2	1.89
Wax, excessive, in ears	2	1.89
Work, excessive hours of	21	19.81
TOTAL NUMBER OF DEFECTS FOUND	474	
AVERAGE NUMBER OF DEFECTS PER PERSON	4.49	
TOTAL NUMBER OF KINDS OF DEFECTS FOUND	140	

Grouped Summary of Defects Found in 106 Physicians

Defect	No. of Cases	Per Cent of Physicians Involved
Skin	54	50.94
Eye	43	40.57
Ear, Nose, Sinus, Throat	28	26.42
Mouth, Teeth, Tongue	36	33.96
Bronchi, Lungs, Pleurae	14	13.21
Blood (not including malaria)	5	4.72
Circulation (including varicose veins of legs)	37	34.91
Postural defects, marked	2	1.89
Abdomen, including Hernia	36	33.96
Rectum	24	22.64
Urinary Organs	10	9.43
Male Reproductive Organs	24	22.64
Metabolism (including diabetes)	38	35.85
Extremities	30	28.30
Nervous System	6	5.68
Harmful Habits (See note below)	82	77.36
Malaria, chronic	1	0.94
Undiagnosed, but recognized abnormal	4	3.77
TOTAL NUMBER OF DEFECTS FOUND	474	

Note: Harmful Habits include excessive hours of work and insufficient sleep—occupational hazards of the practice of medicine.

Comparing these figures with those of the general group examined, we find that physicians show a much larger proportion of defects involving the skin. Why this should be so, I do not know—it may be coincidence. A rather larger proportion of tuberculosis is also present, but this is perhaps natural—an attack of tuberculosis often interests a person in medicine, and medical men are much exposed to it in their work. There seems to be less anemia among physicians than among the general population—this is possibly due to a knowledge of proper diet, plenty of fresh air, etc., in the life of the doctor. Circulatory diseases are especially frequent, it seems, in the medical profession—long hours of work, insufficient sleep, the peculiar stress and strain of medical work, etc., probably all play a part here. Ruling out conditions of sleep and work, which are occupational hazards of medical practice, and largely unavoidable, which make up just one-half of the harmful habits noted, that group is no larger in physicians than in the general public. Fewer cases of undiagnosed abnormalities are recorded in medical men—this is to be expected, as the physician can be of help in explaining his own defects to a greater degree than can the lay patient.

Number of Kinds of Defects According to Frequency of Physicians Involved

TOTAL NUMBER OF KINDS OF DEFECTS FOUND—140

Number of kinds of defects involving only 1 physician (less than 1%)	86
" " " " " " 1 to 2% of those examined	14
" " " " " " 2.1 to 5% of those examined	23
" " " " " " 5.1 to 10% of those examined	8
" " " " " " 10.1 to 20% of those examined	5
" " " " " " 20.1 to 33% of those examined	4

Defects Involving Over 5% of Physicians Examined

Defect	No. of Cases	Per cent of Physicians Involved
Refractive errors, uncorrected	34	32.08
Dental infection (oral sepsis), all kinds	28	26.42
Tobacco, excessive	27	25.47
Obesity	25	23.58
Eczematoid ringworm of feet	21	19.81
Hemorrhoids	21	19.81
Work, excessive hours of	21	19.81
Sleep, insufficient	20	18.87
Appendicitis, chronic	13	12.26
Prostate, hypertrophy of	10	9.43
Varicose veins of legs	10	9.43
Malnutrition	9	8.49
Corns, severe	8	7.55
Tonsils, infected	8	7.55
Gall Bladder disease, chronic	7	6.60
Hernia, inguinal	7	6.60
Testicle, atrophy of, due to mumps	7	6.60

Seventeen different kinds of defects involve over 5% of the physicians examined.

Classification of Defects Found in 522 Apparently Healthy Persons

SKIN AND SUBCUTANEOUS TISSUES	No. of Cases	Per Cent of Persons Involved
Accidental vaccination scar of abdomen	1	0.19
Acne Rosacea	1	0.19
Acne Vulgaris, marked	13	2.49
Boils	3	0.57
Chigger bites	1	0.19
Chloasma	1	0.19
Eczema, chronic	6	1.15
Eczematoid Ringworm of Axillae	1	0.19
Eczematoid Ringworm of feet	33	6.32
Eczematoid Ringworm of groin	3	0.57
Face, infection of	1	0.19
Fibromata of skin and subcutaneous tissues	22	4.21
Food eruptions	1	0.19
Hemangiomata	10	1.92
Ichthyosis	1	0.19
Keratotic spots	2	0.38
Lichen Planus	1	0.19
Lipomata	3	0.57
Lupus Erythematosus	1	0.19
Moles and Nevi—large, numerous, or black	27	5.17
Procain Dermatitis	1	0.19
Psoriasis	1	0.19
Pyogenic eruption of buttocks	1	0.19
Radium burn of long standing	1	0.19
Rhus Dermatitis	1	0.19
Ringworm of hand	1	0.19
Scabies	2	0.38
Scarring of body, extensive, from electric burns	1	0.19
Sebaceous Cysts	3	0.57
Sunburn, acute	1	0.19
Sycosis vulgaris	1	0.19
Tinea Versicolor, extensive	6	1.15
Tuberculosis Cutis	1	0.19
Tuberculosis Sinus over right Ilium	1	0.19
Urticaria	1	0.19
Vitiligo	2	0.38
Total	157	30.08

EYE	No. of Cases	Per Cent of Persons Involved
Blepharitis, chronic	2	0.38
Blindness, Unilateral, cause undetermined	2	0.38
Cataract, Traumatic	2	0.38
Cataract, Bilateral	1	0.19
Corneal scar	1	0.19
Exophoria, Unilateral	1	0.19
Exophthalmos, congenital unilateral	1	0.19
Glass eye	1	0.19
Glaucoma, chronic	1	0.19
Hordeolum	1	0.19
Iritis	1	0.19
Pterygium, bilateral	4	0.77
Pterygium, unilateral	3	0.57
Refractive errors, uncorrected	218	41.76
Strabismus, external	2	0.38
Tobacco Amblyopia	1	0.19
Undeveloped optic nerve, unilateral	1	0.19
Total	243	46.55

EAR, NOSE, SINUS, THROAT	No. of Cases	Per Cent of Persons Involved
Adenoids	3	0.57
Coryza, acute	5	0.97
Deafness, all grades, unilateral and bilateral	37	7.09
Eardrum, ruptured	1	0.19
Eardrum, thickening of	1	0.19
Eczema of external ear	1	0.19
Eustachian tube, obstruction of	1	0.19
Hay Fever	1	0.19
Larynigitis, acute	1	0.19
Myringitis, acute	1	0.19
Nasal Septum, obstructive deflection of	11	2.11
Nasal Septum, perforated	1	0.19
Nasal Septum, obstructive spur on	2	0.38
Nasopharyngitis, chronic	1	0.19
Nose, obstruction of, type undetermined	1	0.19
Nose, obstructive congenital deformity of	1	0.19
Otitis Media, bilateral	2	0.38
Pharynigitis, acute	2	0.38
Pharyngitis, chronic	1	0.19
Pharyngitis, granular	1	0.19
Polyp of left Antrum	1	0.19
Rhinitis, chronic	1	0.19
Sinusitis, antral, chronic	11	2.11
Sinusitis, frontal, chronic	4	0.77
Sinusitis, mastoid, chronic	1	0.19
Sinusitis, pansinusitis, chronic	1	0.19
Tonsils, hypertrophied	11	2.11
Tonsils, infected, chronic	62	11.88
Turbinates, hypertrophied and obstructive	2	0.38
Uvula, elongated	1	0.19
Wax in ears, excessive	2	0.38
Total	172	32.95

MOUTH, TEETH, TONGUE	No. of Cases	Per Cent of Persons Involved
Dental infection, all kinds—caries, pyorrhea, etc.	152	29.12
Dental filling, loose	1	0.19
Dental plate, badly fitting	1	0.19
Glossitis	1	0.19
Gums, spongy	2	0.38
Lips, chapped	1	0.19
Teeth, broken	2	0.38
Teeth, jagged	1	0.19
Teeth, stained badly without evidence of infection	1	0.19
Total	162	31.03

TRACHEA, BRONCHI, LUNGS, PLEURAE	No. of Cases	Per Cent of Persons Involved
Asthma, bronchial	2	0.38
Bronchiectasis	1	0.19
Bronchitis, subacute	2	0.38
Emphysema	2	0.38
Pleural thickening, unilateral	2	0.38
Pneumokoniosis	1	0.19
Tracheobronchitis, subacute	1	0.19
Tuberculosis, pulmonary, active	12	2.30
Tuberculosis, pulmonary, arrested	13	2.49
Total	36	6.90

BLOOD	No. of Cases	Per Cent of Persons Involved
Anemia, secondary	33	6.32
Anemia, pernicious	1	0.19
Total	34	6.51

CIRCULATION (Including Varicose Veins of Legs)	No. of Cases	Per Cent of Persons Involved
Angina pectoris	4	0.77
Aneurism, subclavian	1	0.19
Aorta, dynamic	1	0.19
Arteriosclerosis	7	1.34
Atheroma of aorta	2	0.38
Congenital heart disease—Patent Ductus Areteriosus and Pulmonic Stenosis	1	0.19
Effort Syndrome	1	0.19
Endocarditis, subacute rheumatic	1	0.19
Extrasystoles	4	0.77
Functional murmur	1	0.19
Heart, dilatation of from long swimming race	1	0.19
Heart hyportrophy of	3	0.57
Hypertension, essential	36	6.90
Hypertension, diastolic only	10	1.92
Hypotension, essential	4	0.77
Mitral regurgitation	3	0.57
Mitral Stenosis	1	0.19
Myocardial weakness	7	1.34
Paroxysmal Tachycardia	1	0.19
Pleuropericardial adhesions	1	0.19
Raynaud's Disease	1	0.19
Tobacco Heart	2	0.38
Varicose veins of lower extremities	24	4.60
Vasomotor instability, general	1	0.19
Total	118	22.61

POSTURAL DEFECTS, SPINE, ETC.	No. of Cases	Per Cent of Persons Involved
Coccyx, injured	1	0.19
Kyphosis	2	0.38
Pigeon breast, very marked asymmetric	1	0.19
Round shoulders, marked	32	6.13
Sacroiliac arthritis	3	0.57
Scoliosis, marked	1	0.19
Total	40	7.66

ABDOMEN, INCLUDING HERNIA	No. of Cases	Per Cent of Persons Involved
Abdominal Wall, very lax	1	0.19
Adhesions, visceral	6	1.15
Appendicitis, chronic	44	8.43
Appendicitis, subacute	1	0.19
Bacillary dysentery	1	0.19
Colitis, mucous	2	0.38
Constipation	14	2.68
Convalescence from Appendectomy and Cholecystoctomy	1	0.19
Diverticulitis, chronic	2	0.38
Epiplocele	1	0.19
Gall bladder disease, chronic	24	4.60
Gaseous distention, functional	1	0.19
Gastritis, chronic	2	0.38
Hernia, femoral, bilateral	1	0.19
Hernia, inguinal, bilateral	3	0.57
Hernia, inguinal, unilateral	17	3.26
Hernia, umbilical	2	0.38
Liver, cirrhosis of	2	0.38
Liver, carcinoma of, secondary	1	0.19
Peritonitis, tuberculous	1	0.19
Sigmoiditis, chronic	1	0.19
Total	128	24.52

SPECIAL	No. of Cases	Per Cent of Persons Involved
Carcinoma of Supraclavicular Lymph Modes, secondary	1	0.19

RECTUM	No. of Cases	Per Cent of Persons Involved
Carcinoma	1	0.19
Fissure in Ano	3	0.57
Fistula in Ano	2	0.38
Hemorrhoids	73	13.98
Polyp	1	0.19
Prolapse, tendency to	1	0.19
Stricture	1	0.19
Total	82	15.71

URINARY ORGANS	No. of Cases	Per Cent of Persons Involved
Albuminuria due to recent Influenza	1	0.19
Albuminuria due to tonsil infection	1	0.19
Calculus, renal	6	1.15
Cystitis, chronic	17	3.26
Hydronephrosis, bilateral	1	0.19
Kidney, surgical	1	0.19
Nephritis, acute	1	0.19
Nephritis, chronic hypertensive	13	2.49
Nephritis, type undetermined	3	0.57
Pyelitis, chronic	9	1.72
Renal Glycosuria	1	0.19
Tuberculosis of kidney	1	0.19
Ureter, stricture of	2	0.38
Urethra, stricture of	2	0.38
Total	59	11.30

MALE REPRODUCTIVE ORGANS	No. of Cases	Per Cent of Persons Involved
Epididymitis, chronic, unilateral	1	0.19
Gonorrhea, chronic	1	0.19
Hemangioma of Glans Penis	1	0.19
Hydrocele of Spermatic Cord	3	0.57
Phimosis	8	1.53
Prepuce, adherent	1	0.19
Prepuce, elongated	2	0.38
Prostate, Carcinoma of	1	0.19
Prostate, hard and tender, pathology undertermined	1	0.19
Prostate, hypertrophy of	36	6.90
Prostatitis, chronic	6	1.15
Testicles, absence of, removed for bilateral tuberculosis	1	0.19
Testicles, atrophy of, due to mumps, unilateral	9	1.72
Testicles, tuberculosis of, unilateral	1	0.19
Testicles, undescended, unilateral	1	0.19
Varicocle	6	1.15
Total	79	15.13

FEMALE REPRODUCTIVE ORGANS N.B.—Most of our patients were men, hence these low figures.	No. of Cases	Per Cent of Persons Involved
Cervicitis, chronic	1	0.19
Cervix, lacerated or eroded	10	1.92
Cystocele	3	0.57
Pelvic Cellulitis	1	0.19
Pelvic lacerations, general	6	1.15
Perineum, lacerated	1	0.19
Salpingitis	4	0.77
Uterus, displacement of	9	1.72
Uterus, double (double cervix)	1	0.19
Uterus, fibroid of	2	0.38
Total	38	7.28

METABOLIC DISEASES (including Diabetes Mellitus)	No. of Cases	Per Cent of Persons Involved
Diabetes Mellitus	18	3.45
Malnutrition (more than 10% under standard weight)	57	10.92
Obesity (more than 10% over standard weight)	85	16.28
Total	160	30.65

EDOCRINES (not including Diabetes)	No. of Cases	Per Cent of Persons Involved
Hypogonadism	2	0.38
Thyroid, adenoma of, simple	1	0.19
Thyroid, adenoma of, toxic	9	1.72
Thyroid, Colloid Goitre	2	0.38
Thyroid, Exophthalmic Goitre	3	0.57
Total	17	3.26

EXTREMITIES	No. of Cases	Per Cent of Persons Involved
Exostosis of Tibia, painful	1	0.19
Feet, arches weak, not flat	11	2.11
Feet, club, bilateral	1	0.19
Feet, corns and calluses of, painful	53	10.15
Feet crippled from poliomyelitis, bilateral	1	0.19
Feet, crippled from Trauma	2	0.38
Feet, flat, causing symptoms	9	1.72
Feet, infected, unilateral	4	0.77
Feet, weak Metatarsophalangeal joint of little toe	1	0.19
Finger, infected	1	0.19
Fingers, scar contracture of	1	0.19
Hip, Arthritis of, chronic	1	0.19
Knee, Arthritis of, chronic	1	0.19
Leg, Atrophy of from Poliomyelitis, unilateral	2	0.38
Legs, infected ulcers of	2	0.38
Periostitis of Tibia, chronic	1	0.19
Polyarthritis, chronic	1	0.19
Toes, bunions	14	2.68
Toes, congenital deformity of, a family trait—little toe superimposed upon fourth toe	1	0.19
Toes, crowded by tight shoes	16	3.07
Toes, hammer	9	1.72
Toes, ingrowing nails	11	2.11
Toes, Traumatic Ankylosis of	1	0.19
Toes, webbed, marked degree	2	0.38
Total	147	28.16

NERVOUS SYSTEM	No. of Cases	Per Cent of Persons Involved
Anxiety Neurosis	3	0.57
Arteriosclerotic lesion of brain with unilateral paralysis of tongue	1	0.19
Congenital absence of knee jerks	1	0.19
Face, Paresis of right side of	1	0.19
Habit spasm of eyebrow	1	0.19
Hereditary tremor of chin	1	0.19
Hysteria	1	0.19
Insomnia, cause undetermined	2	0.38
Mental deficiency	2	0.38
Migraine	2	0.38
Neuritis, intercostal	3	0.57
Neuritis, musculospiral	1	0.19
Paranoid Psychosis	1	0.19
Psychic Trauma (white woman whose husband was convicted of being father of negro child)	1	0.19
Psychoneurotic personality	1	0.19
Tabes Dorsalis	2	0.38
Tachycardia, Psychoneurotic	1	0.19
Traumatic neuroses	1	0.19
Vagal attacks	1	0.19
Total	27	5.17

HARMFUL HABITS	No. of Cases	Per Cent of Persons Involved
Activities, excessive number of	1	0.19
Alcohol, excessive	13	2.49
Automobile driving, reckless—8 wrecks	1	0.19
Bad air at night—sleeps with windows shut	4	0.77
Child-bearing, excessive	1	0.19
Coca-colas, excessive	14	2.68
Coffee, excessive	8	1.53
Eating, bad habits of	7	1.34
Exercise, insufficient	6	1.15
Food, improper	7	1.34
Food, insufficient (economic reasons)	1	0.19
Morphinism, chronic	1	0.19
Purgative habit	4	0.77
Recreation, insufficient	6	1.15
Sleep, insufficient (due to work or habits, not insomnia)	34	6.51
Sugar, excessive in diet	3	0.57
Tobacco, excessive	72	13.79
Vaccination for smallpox needed (records are incomplete for this and for typhoid)	8	1.53
Vaccination for typhoid needed, records, ditto	4	0.77
Venery, excessive	2	0.38
Work, excessive hours of	41	7.85
Work, excessive tension of	1	0.19
Total	239	45.79
MALARIA, CHRONIC Total	4	0.77
SYPHILIS, CONGENITAL Total	1	0.19

UNDIAGNOSED CONDITIONS, BUT RECOGNIZED ABNORMAL	No. of Cases	Per Cent of Persons Involved
Albuminuria, cause undetermined	10	1.92
Bodily proportions peculiar—thin face, neck, thorax and abdomen, with thick thighs and legs	1	0.19
Dysmenorrhea, cause undetermined	2	0.38
Enlarged veins in upper chest	1	0.19
Eosinophilia, cause undetermined	7	1.34
Epigastric tenderness with right rectus rigidity	1	0.19
Fatigue, chronic	1	0.19
Fever of undetermined origin	2	0.38
Hematuria	1	0.19
Irregular menstruation	1	0.19
Laryngeal trouble of undetermined nature	1	0.19
Lung condition—sounds like general pleural friction without subjective symptoms or other physical signs	1	0.19
Mass in left Hypochondrium, apparently not spleen	1	0.19
Menorrhagia, cause undetermined	3	0.57
Metrorrhagia, cause undetermined	2	0.38
Painful tender cervix—looks normal	1	0.19
Pelvic trouble of undetermined nature	1	0.19
Pulse pressure low	1	0.19
Pyuria, cause undetermined	3	0.57
Tachycardis, cause undetermined	2	0.38
Tenderness below left ear, cause undetermined	1	0.19
Tenderness in left Hypochondrium	1	0.19
Tenderness in knees	1	0.19
Tenderness over right mastoid, cause undetermined	1	0.19
Tenderness over left mastoid, cause undetermined	1	0.19
Uterus, enlarged and tender, cause undetermined	1	0.19
Total	49	9.58

GROUPED SUMMARY OF DEFECTS	No. of Cases	Per Cent of Persons Involved
Skin and Subcutaneous Tissues	157	30.08
Eye	243	46.55
Ear, Nose, Sinus, Throat	172	32.95
Mouth, Teeth, Tongue	162	31.03
Trachea, Bronchi, Lungs, Pleurae	36	6.90
Blood	34	6.51
Circulation, including varicose veins of legs	118	22.61
Postural defects, spine, etc.	40	7.66
Abdomen, including Hernia	128	24.52
Special-Carcinoma of Supraclavicular Lymph Nodes	1	0.19
Rectum	82	15.71
Urinary Organs	59	11.30
Male reproductive organs	79	15.13
Female reproductive organs	38	7.28
Metabolic diseases, including Diabetes Mellitus	160	30.65
Edocrines, not including Diabetes	17	3.26
Extremities	147	28.16
Nervous System	27	5.17
Harmful Habits	239	45.79
Malaria, chronic	4	0.77
Syphilis, congenital	1	0.19
Undiagnosed, but recognized abnormal	49	9.58
GRAND TOTAL	1,993	

TOTAL NUMBER OF PERSONS EXAMINED	522
TOTAL NUMBER OF DEFECTS FOUND	1,993
AVERAGE NUMBER OF DEFECTS PER PERSON	3.82

Frequency of Occurrence of Defects Summarized

Number of defects involving less than	0.25%	of those examined	161
" " " "	0.25% to 0.50%	" " "	46
" " " "	0.51% to 1.00%	" " "	32
" " " "	1.01% to 2.00%	" " "	27
" " " "	2.00% to 5.00%	" " "	20
" " " "	5.01% to 10.00%	" " "	10
" " " "	10.01% to 20.00%	" " "	6
" " " "	20.01% to 50.00%	" " "	2
Total Number of kinds of defects			304

Defects Involving Over 5% of Persons Examined

DEFECT	No. of Cases	Per Cent of Persons Involved
Refractive errors, uncorrected	218	41.76
Dental infection	152	29.12
Obesity	85	16.28
Hemorrhoids	73	13.98
Tobacco, excessive	72	13.79
Tonsils, infected, chronic	62	11.88
Malnutrition	57	10.92
Feet, corns and calluses, painful	53	10.15
Appendicitis, chronic	44	8.43
Work, excessive hours of	41	7.85
Deafness, all grades	37	7.09
Hypertension, essential	36	6.90
Prostate, hypertrophy of	36	6.90
Sleep, insufficient, due to work or habits, not insomnia	34	6.51
Anemia, secondary	33	6.32
Eczematoid ringworm of feet	33	6.32
Round shoulders, marked	32	6.13
Moles, and Nevi, large, numerous, or black	27	5.17

BUREAU OF MATERNITY AND INFANCY

BUREAU STAFF

The headquarters staff consists of:
Medical Director
Director of Nursing
Three State Field Nurses
Stenographer
Mailing Clerk

Specialized Program Prior to July 1, 1929

During the year July 1, 1928, to June 30, 1929, the Bureau of Maternity and Infancy was financed jointly by State and Federal funds. During this time the activities were of a specialized nature. Twenty-two counties were given financial assistance for one nurse in each county, her duties being limited to maternal and infant hygiene work in accordance with plans approved by the State Board of Health and the Federal Children's Bureau.

Generalized Program After July 1, 1929

On July 1, 1929, the Federal Sheppard-Towner funds were exhausted and no more Federal funds were available. The State made sufficient appropriation to carry on the work with the exception of one state field nurse.

Realizing the importance of a well-organized generalized nursing program, the maternity and infancy budget was pooled with the budget for general health work, and the activities of the Bureau were broadened to the extent that fifty-five county nurses are doing some maternity and infancy work as a part of a general health program.

While the main objective of the Bureau is to bring about a gradual reduction in maternal and infant morbidity and mortality, we realized that by having a generalized nursing program, other phases of health work could also be carried on to the mutual advantage of all concerned, giving the nurse a broader field in which to serve, and a better opportunity for developing health work on a more permanent basis.

The Bureau, in addition to its administrative duties, exercises general supervision over all maternity and infancy nursing activities in the State, with special reference to those counties having a high maternal and infant death rate.

In organizing a county program, the needs of the county for nursing service are determined by making a study of morbidity and mortality statistics for a period of several years. Using this as a basis, plans are outlined for the nursing program to include group and individual work, both in the field and in the office, and including all phases of public health nursing, rather than limiting it to maternity and infancy alone.

Divisions of Service

The work of the Bureau may be included in three main divisions:

1. Maternal Hygiene—including wid-wife instruction and supervision.
2. Infant Hygiene—(under one year).
3. Hygiene of the Pre-school Child—(2 to 6 years).

Maternal Hygiene

As a background, let us contrast North Carolina's maternal mortality rate with the rate of the U. S. Registration Area with the principal causes of deaths. The maternal mortality rate for North Carolina is 78.5, while that for the United States Birth Registration Area is 69.2. We lose more than 500 mothers in North Carolina each year from causes directly associated with child-birth. The chief causes of these deaths, in order of occurrence, are:

Toxemias of pregnancy.
Accidents of birth.
Puerperal sepsis.

The principal causes of deaths as recorded for the Registration Area of the United States are, in order of occurence:

Puerperal sepsis.
Toxemias of pregnancy.
Accidents of birth.

Since toxemias form our chief cause of maternal mortality, we necessarily emphasize nutrition in our general pre-natal programs. Whether the expectant mother is seen in her own home, the health department, or in a health center, she is routinely given advice concerning diet, elimination, exercise in the open air, but avoidance of working to the point of fatigue. Simple preparations for a home delivery and for a layette, proper clothing, etc., cannot be overlooked, but we believe that faulty diet, or food poorly prepared, coupled with poor elimination and over-fatigue, is largely responsible for our unusually large number of maternal deaths from kidney complications. (The steady increase in pellagra in North Carolina proves that there is a vast amount of work to be done along lines of nutrition.) The following quotation from a report by Dr. Blanche Haines, Director Federal Department of Maternity and Infancy, is encouraging:

"The decrease in the death rate from puerperal causes is accounted for almost entirely by a decrease in the rate due to albuminuria and convulsions. The rate from this cause was 18 per 10,000 live births in 1922 and 15 per 10,000 live births in 1927. It is in this group of causes of deaths that we expect ante-partum care to have the greatest influence. Certainly the reduction in rate has been coincident with the increase in health instructions to expectant mothers and the improved care given by physicians."

Thousands of mothers go through the pre-natal period and delivery without consulting a physician, depending entirely upon a mid-wife for pre-natal advice, care at delivery and for instructions as to the care of the mother herself and baby after delivery. For this reason, we feel that we must, of necessity, see that mid-wives have some instruction and no longer permit this work to be done by dirty, ignorant women.

Infant Hygiene

North Carolina has the highest birth rate, and is exceeded by only three states in the United States Registration Area in infant mortality. Our infant mortality rate for 1929 was 80.5. The rate for the U. S. Registration Area for the same year was 69.0. We lose each year about 6,500 babies under one year of age. Of these 6,500 deaths, more than 3,000 occur during the first month, and more than 2,000 die during the first week of life. In other words, approximately one-half of the total infant deaths occur during the first month, and more than one-third of the total occur during the first week. And yet, it has been proved that, where it is possible to give good prenatal care as well as good care during and after delivery, these deaths under one month, and also stillbirths, can be definitely lowered. This was demonstrated in Detroit a number of years ago, and recently was demonstrated in a rural community—Tioga County, New York.

While our major problem in infant mortality in North Carolina is neonatal mortality, we still have outstanding problems in morbidity and mortality due to diarrhea and enteritis, and the various other preventable diseases of childhood. Thus the nurse's infant hygiene program resolves itself largely into a nutrition program, including the establishment of good health habits in general. Increased knowledge of matters pertaining to health has decreased the number of deaths from diarrhea and enteritis, but we still have much to do along this line.

Hygiene of the Pre-school Child

The attention of health workers is being increasingly centered upon the child between infancy and school age.

Statistics show that many defects of school age, and of adults, had their beginning in early childhood. We are convinced that with proper care and supervision during infancy and the pre-school period, many of these defects could be prevented. Others could be remedied at an early stage, thereby saving the child much needless suffering in later life.

Methods

The following methods are used in an attempt to teach the value of good pre-natal, infant and pre-school hygiene:

1. Home visits.
2. (a) Conferences conducted by physicians.
   (b) Conferences conducted by public health nurses.
3. Classes and demonstrations.
4. Distribution of literature.

Home Visits

The visit to the home is an indispensable part of any public health nursing program, inasmuch as it links up the family with the school, the clinics, and the family physician. Here the nurse has an opportunity, found nowhere else, for studying the family as a whole, in its own environment. Needless to say, the nurse cannot visit all cases that come to the attention of the health department. This calls for a careful planning of her schedule in order that her time be spent upon the most urgent cases, and some method of separating normal for abnormal cases in order that her visiting list will not be so heavy that efficiency is sacrificed.

Pre-natal and Child Health Conferences

Since with limited personnel, it is possible to visit only a comparatively small number of mothers and children in their homes, it is necessary to organize group work as a supplement to home nursing visits. The type of conference varies to suit conditions and personnel. One county may successfully conduct one or more permanent health centers held at regular intervals; another county with more limited personnel may conduct one permanent center and supplement this with one or more itinerant conferences held at various points in the county, in order that some service may be available to all sections; another county may not be able to organize permanent centers but may conduct a series of itinerant conferences once or twice a year, at points where the need seems greatest.

Our most popular type of group work is the Well-Children's Conference or clinic. The age limit of children admitted varies, but most often infants and pre-school children (from birth to school age) are admitted. Where pre-natal cases are encouraged to attend these conferences, we find a fairly good attendance, perhaps in some communities better than if the pre-natal clinic should be conducted separately.

Conferences for pre-natal cases have been conducted in several counties by the public health nurse. The history taken and advice given is the same as that given on a nursing visit to the home. Such a conference will not take the place of a home visit but with the usual overcrowded program, it enables the nurse to reach more mothers with health education material.

Pre-natal clinics with a physician in attendance have been held weekly in Wayne and Mecklenburg counties.

For the purpose of centering attention upon child health, conferences have been held during the spring months for the past three years for the child of immediate pre-school age. This is a comparatively new piece of work—inaugurated by the National Congress of Parents and Teachers in 1925 at a meeting in California. They called it the "Summer Round-up of Children." This work has grown rapidly in North Carolina in the past three years. The plan calls for a physical examination of the child in the spring. Where defects are discovered, the child is referred to his family physician or dentist for final opinion and treatment. A check-up is then held in the fall to find out how many children have received corrections.

The object is to send to our first grade a class of children 100% free from remediable defects. In 1928 about twenty counties held these pre-school conferences; in 1929 about thirty-five counties; and this year, fifty-seven counties.

It is an astonishing fact that practically 50% of the children in the first grades of our rural schools are repeaters. The educational authorities in the state are anxious to reduce this large number of repeaters and thereby materially reduce expense. As a mans to this end, they have been most coöperative.

When parents realize that an examination is desirable not only at the immediate pre-school period, but at reasonable intervals from birth onward, then the Summer Round-up will have served its purpose, and become unnecessary.

Classes for Midwives

Mid-wife control work in North Carolina is considered as a part of the pre-natal and infant program, rather than as a separate unit of work. The standard course of instruction includes both theoretical work and practical demonstration. Each mid-wife is required to have standard equipment for her work, and to show by demonstration that she knows how to use it on a normal case, the proper use of the equipment first being demonstrated by the nurse who conducts the classes. Cleanliness is stressed, also the use of eyedrops, reporting births promptly and knowing when to call a doctor. She is taught plainly that she cannot make an inside examination or give any medicine. Pre-natal care and care of the baby are also taught in class and later, when time permits, demonstrated by the nurse taking the mid-wife on a visit to one or more of her patients. In order that patients may receive literature and in order to keep up with the activities of the mid-wives themselves, they are required to report all cases, both pre-natal and baby, to the local health department.

We are convinced that there is no better way to eliminate undesirable mid-wives than by teaching them, and requiring more and more of them each year. There has been a decrease of approximately 25% in the number of mid-wives in the State since intensive mid-wife control work was started in 1925. There has also been a steady decrease in the number of cases delivered by mid-wives, and a proportionate increase in deliveries by physicians.

Year	*Total Births*	*Delivered by Physicians*	*Delivered by Midwives*
1923	84,190	55,936	27,791
1925	83,700	57,195	25,988
1927	83,330	58,876	24,454
1928	80,887	57,901	22,986
1929	77,159	54,892	22,267

Within the past two years, seven additional counties have adopted the model county regulations, giving local health authorities direct control of midwife practice, making a total of thirty-six counties now having midwife control.

In these thirty-six, there has been strict adherence to our standard outlined course. The midwives have had the initial course of instruction consisting of a series of six classes, followed by check-up classes from time to time to be sure that equipment is complete and in good condition and that reporting is done promptly.

Distribution of Literature

Monthly pre-natal letters have been sent to 20,286 mothers. An increasing number are making requests in the early months of pregnancy, but many requests do not come in until the seventh or eighth month. This shows the amount of health education work yet to be done by public health workers and physicians.

Infant literature was sent to 44,992 parents; also, literature was sent to 5,163 parents of pre-school age children.

In order to reach a greater number of persons a post-natal letter has been sent to the parents of every child from whom a birth certificate is received, since September, 1928. Enclosed in this letter is an order card for baby literature, to be returned if the parents have not already received such literature. In this way, practically every parent is reached, provided the births are reported.

This method has been very gratifying, having enabled us to reach 13,693 additional infants within the past twenty-two months.

Literature Distributed

July 1, 1928—June 30, 1930

Pre-natal Letters	97,676
Pre-natal Care	32,196
Our Babies	38,842
Infant Care	55,548
Runabout Children in the House of Health	64,713
Hints to North Carolina Mothers	56,230
Height and Weight Cards	53,017
Save Your Babies	33,618
Diet Lists	53,519
Minimum Standards of Pre-natal Care	41,398
What Builds Babies	45,844
Sunlight for Babies	47,618
Breast Feeding	54,481
Baby's Daily Time Card	69,522
Number Boxes 1% Solution of Silver Nitrate (6 ampoules to box)	29,883

Maternal and Infant Activities in Thirty-four Counties For the Period

July 1, 1928—June 30, 1930

Cases Registered:	Prenatal 14,001—Infant 28,083; Preschool 18,478	60,562
Home Conferences:	Prenatal 14,442; Postnatal 11,415; Infant 42,909; Preschool 25,837; Midwife 5,397; Physicians 3,392	103,392
Conferences:	Clinic or Individual—By Physicians; Prenatal 3,556; Infant 11,477; Preschool 20,164	35,197
Conferences:	Clinic or Individual—By Nurse; Prenatal 2,272; Infant 4,945; Preschool 13,043; Midwife 3,445	23,705
Group Conferences (attendance)		23,112
Complete Urine Analysis		8,301
Specimens sent to State Laboratory		3,326
Midwives Instructed (six-hour course)		3,153
IMMUNIZATIONS:		
Diptheria		32,106
Smallpox		31,648
Typhoid		21,738
Total		85,492
CORRECTION OF DEFECTS:		
Tonsils and Adenoid Operations		1,574
Children treated—Dental defects		6,698
Refractive errors corrected		115
Orthopedic corrections		285
Nutritional corrections		1,782

BUREAU OF MEDICAL INSPECTION OF SCHOOLS

Organized in 1917, the division functions under provisions of special statutes enacted by the General Assembly of that year. This legislation provides for the physical examination of school children for the detection of those who are retarded and who retard their classmates because of defects so frequent among the school population as to have appropriately acquired the term "common defects of school children," to the practical end that the finding of such defects will stimulate an interest in both the medical profession and the public generally that will result in their correction.

The defects most frequently found in children, and which have acquired the term "common defects of school children," are those of nutrition, posture, hearing, vision, teeth, throat, nasal passages, bones and skin. It has been demonstrated that children handicapped by one or more such defects do not, as a rule, make the same progress in their school work as do their unhandicapped classmates, and that the retardation of the individual results in the retardation of the entire class.

The objective of the division is to discover through the physical examination of school children the presence of such handicapping defects and to secure the correction of such defects insofar as possible. In the endeavor to achieve this result the work of the division is divided into two parts.

School Inspection

During the biennium school inspection service has been rendered by a corps of seven trained and experienced nurses who have limited their work to those counties in the State which do not have adequate local public health service. A total of forty-one counties have been served during the period as follows:

Alamance, Alexander, Alleghany, Anson, Ashe, Avery, Bladen, Caldwell, Carteret, Caswell, Chatham, Clay, Columbus, Duplin, Edgecombe, Franklin, Graham, Harnett, Haywood, Hertford, Hoke, Hyde, Iredell, Jackson, Lee, Madison, Martin, Mitchell, Montgomery, Moore, Orange, Pamlico, Pender, Randolph, Scotland, Stokes, Swain, Union, Watauga, Wilkes and Yancey.

In these forty-one counties 2,277 schools were visited and a total of 139,751 children were inspected. These children were all weighed and measured, vision and hearing tested, throat, nose and teeth carefully inspected, and other defects noted, the inspection being in accordance with Form 1 and Form 2, these showing the two sides of the physical examination card now in use for this work. The reports of the nurses show the following defects found:

Nutrition 22,229, posture 2,541, hearing 2,657, vision 15,612, teeth 52,206, throat 69,564, breathing 12,628, orthopedic 588, skin 3,143, miscellaneous other 23,136.

Interpreted in terms of percentage these figures reveal some startling facts, particularly with regard to the oral cavity. Nearly one-half of the children inspected, 49.8% were found with throats choked by enlarged tonsils the size and appearance of which would indicate a diseased condition needing medical care. The nasal passages of 9.0% were blocked by adenoids or other nasal conditions to an extent that breathing was difficult. More than a third, 37.3% were found with bed teeth, in a large number of instances cavities showing in the permanent teeth. About one-tenth, 11.1%, were handicapped by defective vision and needed glasses to correct the errors of vision in order to see normally. More than one-sixth, 15.9%, upon being weighed were ten per cent or more underweight for their age and height, indicating either faulty food habits or else lack of adequate food to meet the needs of the growing body.

To the parents of each child found with some defect was sent a notice giving the opinion of the nurse and urging that competent medical or dental service be secured in order that the defects might be speedily corrected and the handicap to the child's physical and mental growth be removed. With this notice was also given special pamphlets prepared by the Board dealing with the care of the teeth, the eyes, diseased tonsils and adenoids, diet and related subjects. In addition the nurses delivered health talks in the classrooms, assisted teachers in planning courses in health education, talked to parent-teacher groups, and frequently conferred with parents about the health of individual children.

As a practical educational demonstration in corrective work, tonsil and adenoid clinics were conducted in thirty-seven counties. For this purpose a fully equipped mobile hospital unit is maintained for field service during the summer months. The unit has a physician anaesthetist, ten nurses, and an orderly, with equipment sufficient to care for twenty-five children daily. The operating surgeon is a specialist selected by the local county board of health and physicians. The plan followed is practically the same as first developed when this service was inaugurated in 1918. A nominal fee is charged those able to pay, with free operative treatment to others. The service is restricted to those counties which do not have adequate hospital facilities and the availability of resident professional service. Towards the success of the service splendid cooperation has been given by the specialists of the state.

During the biennium these clinics were held in the following counties: Alexander, Anson, Ashe, Avery, Bertie, Burke, Chatham, Cherokee, Clay, Davie, Franklin, Gates, Greene, Halifax, Haywood, Hertford, Hoke, Hyde, Jones, Madison, Martin, Mitchell, Montgomery, Moore, Northampton, Onslow, Orange, Polk, Randolph, Rutherford, Stokes, Transylvania, Warren, Watauga, Wilkes, Yadkin, and Yancey. A total of 3,694 children were operated upon for diseased tonsils and adenoids.

Following experimental work in 1918, the plans for this clinic service were formulated and the clinics established the following year. From 1919 through June, 1930, a total of 20,095 children have been treated in these clinics. A review of this service by years from the beginning is here given, showing the counties, the total number of children operated upon, and the operating surgeons.

County	Number	Operating Surgeon
	1919	
Alamance	97	McPherson and Walker
Buncombe	60	John B. Wright
Cherokee	69	H. H. Briggs
Gaston	5	
Haywood	96	J. R. McCraken
Hertford	23	John B. Wright
Jackson	40	M. R. Gibson
Macon	27	S. H. Lyle
Madison	75	H. H. Briggs
Mitchell	33	M. R. Gibson
Northampton	39	John B. Wright
Pender	53	S. E. Koonce
Pitt	38	C. J. Ellen
Sampson	88	John B. Wright
Swain	60	M. R. Gibson
Transylvania	110	H. H. Briggs
Wilkes	86	M. A. Royall
Yancey	75	Wright and Buckner
	1920	
Cabarrus	34	C. N. Peeler
Davidson	52	J. R. McCraken
Duplin	59	Wright, Daniels and Murphy
Granville	119	Wright and Gibson
Guilford	38	J. W. Austin
Haywood	75	J. R. McCracken
Henderson	98	H. L. Sloan
Lee	54	M. L. Matthews
Moore	79	John B. Wright
Orange	51	M. R. Gibson
Robeson	57	Murphy and Sloan
Rutherford	106	Scruggs and Peeler
Sampson	92	John B. Wright
Surry	73	M. S. Martin
Union	81	C. N. Peeler
Vance	80	Wright and Newell
Watauga	99	H. L. Sloan
Wilson	13	John B. Wright
Yancey	40	John B. Wright
	1921	
Avery	91	C. N. Peeler
Burke	48	A. M. Whistnant
Chatham	110	John B. Wright
Columbus	82	Murphy and Smith
Gates	57	M. R. Gibson
Harnett	72	John B. Wright
Johnston	87	M. R. Gibson
Lincoln	60	W. F. Elliott
Montgomery	82	M. L. Matthews
Northampton	41	John B. Wright
Polk	90	M. R. Gibson
Richmond	64	Murphy and Smith
Union	20	R. H. Garren
Warren	87	M. R. Gibson
Washington	58	H. W. Carter
Watauga	91	M. R. Gibson

County	Number	Operating Surgeon
	1922	
Alleghany	100	Schaub and Jones
Anson	100	C. N. Peeler
Ashe	100	W. P. Speas
Bladen	98	Smith and Sloan
Cabarrus	100	C. N. Peeler
Camden Currituck	85	W. W. Sawyer
Caswell	94	John B. Wright
Catawba	100	W. P. Speas
Chowan	9	P. L. Gordon
Cleveland	101	C. N. Peeler
Dare	94	W. W. Sawyer
Greene	89	James M. Parrott
Hyde	97	H. W. Carter
Jones	70	James M. Parrott
McDowell	93	A. C. McCall
Macon	70	A. M. Whistnant
Onslow	81	Koonce and Freeman
Pamlico	100	O. C. Daniels
Pasquotank	84	W. W. Sawyer
Perquimans	95	W. W. Sawyer
Person	100	B. W. Fassett
Rockingham	100	O. P. Schaub
Surry	64	M. A. Royall
Tyrrell	85	W. W. Sawyer
Wayne	100	Daniels and Woodward
Wilkes	89	M A. Royall
Yadkin	90	B. N. Jones
Yancey	100	John B Wright
	1923	
Alexander	100	C. N. Peeler
Avery	25	W. P. Speas
Beaufort	197	H. W. Carter
Bertie	100	C. J. Sawyer
Brunswick	100	Koonce and Murphy
Caldwell	100	W. P. Speas
Chatham	125	Wright and Gibson
Davie	97	B. W. Fassett
Franklin	195	B. W. Fassett
Halifax	75	H. A. Newell
Hoke	96	John B. Wright
Iredell	100	Brandon and Vaughn
Madison	100	R. G. Buchner
Martin	125	Sawyer and Carter
Mitchell	41	A. C. McCall
Moore	100	M. L. Matthews
Pamlico	200	D. A. Dees
Polk	67	A. C. McCall
Randolph	100	John B. Wright
Rutherford	125	M. R. Gibson
Scotland	100	M. R. Gibson
Stokes	100	B. N. Jones
Vance	100	H. A Newell

County	Number	Operating Surgeon
	1924	
Alamance	100	A. M. Whistnant
Bladen	90	S. A. Smith
Burke	100	A. M. Whistnant
Carteret	100	R. L. Daniels
Caswell	100	John B. Wright
Columbus	100	S. A. Smith
Duplin	100	Murphy and Henderson
Harnett	125	John B Wright
Haywood	98	J. R. McCracken
Hyde	90	H. W. Carter
Jackson	87	J. R. McCracken
Johnston	100	J. H. Fitzgerald
Lee	100	M. L. Matthews
Mecklenburg	250	Tucker, MacConnell, Johnston, Whistnant, Petrie, Wakefield, Peeler, Harris
Orange	100	B. W. Fassett
Pender	100	S. E. Koonce
Person	100	B. W. Fassett
Richmond	100	J. G. Murphy
Swain	100	J. R. McCracken
Vance	100	H. A. Newell
Warren	201	M. R. Gibson
Hertford	92	C. J. Sawyer
	1925	
Catawba	100	W. P. Speas
Chowan	100	W W. Sawyer
Currituck	100	W. W. Sawyer
Dare	74	J. C. McCabe
Gates	98	C J. Sawyer
Greene	100	Woodward and Henderson
Jones	100	R. L Daniels
Northampton	100	C. J. Sawyer
Onslow	100	R. L. Daniels
Perquimans	100	W. W. Sawyer
Tyrrell	100	H. W. Carter
Washington	100	H. W. Carter
Yadkin	100	B. N. Jones
	1926	
Alexander	94	V. K. Hart
Alleghany	99	O. P. Schaub
Anson	100	J. H. Tucker
Ashe	99	W. P. Speas
Avery	97	J. W. MacConnell
Bertie	100	C. J. Sawyer
Chatham	100	Wright and Wilkins
Franklin	100	John B. Wright
Hoke	100	R. B. Wilkins
Madison	100	Wilson and McCall
Martin	100	H. W. Carter
Mitchell	90	M. S Broun
Montgomery	100	H. A. Wakefield
Moore	100	M. L. Matthews
Randolph	100	John B. Wright
Stokes	99	B. N. Jones
Watauga	100	A. M. Whistnant
Yancey	93	A. C. McCall

County	Number	Operating Surgeon
	1927	
Hertford	90	C. J. Sawyer
Hyde	100	H. W. Carter
Pamlico	100	O. C. Daniels
Pender	100	S. E. Koonce
Bladen	100	R. S. Beam
Duplin	200	T. B. Henderson
Columbus	100	S. A. Smith
Caswell	100	O. P. Schaub
Swain	97	J. R. McCracken
Haywood	100	J. R. McCracken
Clay	100	J. R. McCracken
Jackson	100	J. R. McCracken
Graham	30	J. R. McCracken
Caldwell	101	R. W. Petrie
Orange	100	B. W. Fassett
Warren	120	M. R. Gibson
Person	125	B. W. Fassett
Harnett	100	M. R. Gibson
	1928	
Dare	85	W. W. Sawyer
Currituck	100	H. W. Carter
Perquimans	100	W. W. Sawyer
Chowan	100	W. W. Sawyer
Washington	100	H. W. Carter
Tyrrell	90	W. W. Sawyer
Greene	100	Henderson, Woodward, Peery
Jones	100	R. L. Daniels
Onslow	100	Daniels and Freeman
Rutherford	100	A. M. Whistnant
Cherokee	100	J. R. McCracken
Transylvania	100	M. S. Broun
Polk	100	A. C. McCall
Burke	100	W. P. Speas
Yadkin	100	B. N. Jones
Davie	100	B. W. Fassett
Halifax	100	T. H. Royster
Gates	100	C. J. Sawyer
Northampton	100	C. J. Sawyer
	1929	
Bertie	100	C. J. Sawyer
Martin	100	C. J. Sawyer
Franklin	100	B. W. Fassett
Chatham	100	W. P. Hardee
Moore	100	W. P. McKay
Anson	100	J. H. Tucker
Alexander	100	G. J. Tygett
Madison	100	R. G. Wilson
Yancey	100	R. G. Wilson
Mitchell	99	R. G. Wilson
Avery	95	J. W. MacConnell
Watauga	100	R. W. Petrie
Ashe	100	W. P. Speas
Wilkes	100	A. M. Whistnant
Stokes	100	B. N. Jones
Randolph	100	B. W. Fassett
Hoke	100	R. B. Wilkins
Montgomery	100	H. C. Wakefield

County	Number	Operating Surgeon
	1930	
Hertford	100	C. J. Sawyer
Hyde	100	H. W. Carter
Warren	100	M. R. Gibson
Orange	100	W. P. Hardee
Haywood	100	J. R. McCracken
Clay	97	J. R. McCracken

Dental Clinics

As a further follow-up in the effort to secure corrective treatment of defects by means of educational demonstrations free dental clinics have been continued during the biennium. Added to these clinics has been an intensive educational campaign in nearly every county in the State.

On January 1, 1929, Dr. Ernest A. Branch succeeded Dr. J. C. Johnson as Director of Oral Hygiene in charge of this division of the work. In discussing the objectives of the work, Dr. Branch says:

"It is undeniable that teeth neglect directly affects many more people, and that more physical degeneracy can be traced to this source, than to the abuse of alcohol. Dental caries has been named 'The People's Disease.' Every day hundreds of thousands of teeth are aching. About one-fifth of all the teeth of our school children are diseased.

"Diseased teeth are responsible for a vast amount of ill health. Toxemia from the swallowing and absorption of pus is probably the most serious evil of neglected teeth. Every cavity is filled with decayed food and bacteria. The germs of tuberculosis and diphtheria are often found in dental cavities and are thought to sometimes find their way into the body from this source.

"When teeth are decayed the tonsils are more likely to become diseased.

"The causes of dental decay are definitely known, tangible, and amenable to control. Dental decay is chiefly a disease of childhood and youth. If kept in repair till the age of twenty the teeth should be sound at sixty. Neglected teeth till twenty, teeth with any tendency to decay, are beyond hope of salvage.

"Until comparatively recently the mouth of the child to the average teacher was an unknown quantity. Even the dentist and physician were not aware of the actual conditions for the reason that only about 5% to 10% of the children come to them for examination.

"In examining mouths of retarded children in our schools, we have found great numbers of them in deplorable condition. There are at least four kinds of influences resulting from dental decay:

"1. Decreased power of mastication.
"2. Toxic effect of pus which is absorbed directly into the blood or taken into the stomach and intestines.
"3. Reflex nervous disturbances.
"4. The possibility of acting for a breeding ground for bacteria.

"Many children from six to twelve are deprived of half the normal chewing surface by decayed teeth. The loss of one of the six-year molars means the functional loss of its opposite.

"When we realize that the 'mouth is the gateway of the body' and see how it is neglected, we are not surprised that so many of our children are sick. These children enter school in September underweight and in a run-down condition—decayed teeth, gum boils, abscesses, etc.—and naturally fail to make their grades in school. Their physical condition is such a handicap that there is nothing for them to do but fail.

"Sixty thousand children are entering school in our State each September for the first time.

"We are endeavoring to both preach and practice in our activities.

"Lectures on disease and health of the mouth have been delivered to more than one hundred and fifty thousand in schools, teachers' meetings, mothers' clubs, parent-teacher meetings, civic clubs, summer schools, county commencements, churches, etc.

"Dental corrections are used as a visual means of health education. Although the staff of field dentists necessarily has had to be cut to six in number, our dental health education programs have enabled us to add five extra men in the spring of 1930 and we are expecting to use them from September to June first of the 1930-31 school year without cost to our budget. This extra money is provided by boards of education, health departments, parent-teacher associations, civic clubs, and in one or two instances by private individuals.

"In our corrective work quality and not quantity is the goal, knowing that to be the very foundation for constructive dental health education.

"We consider the outstanding work for the year for this division to have been the work in the orphanages of the State.

"Clinics were held at the Methodist Orphanage, Raleigh; Catholic Orphanage, Raleigh; Orphans' Home, Banner Elk; Presbyterian Orphanage, Barium Springs; Mills Home, Thomasville; Pythian Home, Clayton. In addition, clinic service was supplied to the State schools for the blind, white and colored, at Raleigh. These clinics were paid for on cost basis by the several institutions."

The free dental clinics were conducted during the biennium for the public school children in the following counties:

Alamance, Alleghany, Anson, Avery, Beaufort, Bladen, Brunswick, Buncombe, Cabarrus, Caldwell, Camden, Carteret, Chatham, Clay, Columbus, Cumberland, Currituck, Dare, Davidson, Durham, Edgecombe, Forsyth, Gaston, Granville, Guilford, Halifax, Harnett, Hoke, Johnston, Jones, Lee, Lenoir, McDowell, Mecklenburg, Montgomery, Nash, New Hanover, Northampton, Onslow, Orange, Pender, Person, Pitt, Polk, Randolph, Robeson, Rockingham, Rowan, Rutherford, Sampson, Scotland, Stokes, Transylvania, Wake, Warren, Washington, Wayne, Wilkes, Wilson. Extended clinics, locally financed, were held in the cities of High Point and Gastonia.

In these counties 1,054 schools were visited, the field dentists being total of 75,710 children were examined, and 61,365 received dental treatment, this requiring 206,674 operations. These included: amalgam fill- provided with portable outfits and working in the school buildings. A ings, 48,265; cement fillings, 4,405; guttapercha fillings, 506; silver nitrate treatments, 51,898; abscesses treated, 1,019; teeth extracted, 37,212; children having teeth cleaned, 57,980; miscellaneous treatments, 5,389.

The field dentists found 3,997 children needing no dental treatment, or less than 6% of all examined. A total of 9,583 were referred to private practitioners because of trouble so far advanced as to require prolonged treatment. Of the total number only 239 proved unmanageable in the chairs of the dentists, a wonderfully striking tribute to their ability, patience and tact in handling children. In addition to their active professional work the field dentists gave 858 lectures on oral hygiene to a total audience of 73,053 people.

Personnel

During the biennium the Bureau of Medical Inspection of Schools has been conducted without the services of a bureau director, the work being under the personal direction of the State Health Officer.

The inspection has been accomplished with a corps of seven nurses, with a physician anaesthetist, three extra nurses and an orderly added for the tonsil and adenoid clinics during the summer.

The oral hygiene division has had a supervising director and seven field dentists, with five field dentists on part time to supply the demand for extended clinics locally financed.

BUREAU OF VITAL STATISTICS

Objectives

The objective of the Bureau of Vital Statistics is to secure a permanent record of the more important facts concerning the birth and death of every citizen of the State of North Carolina, and from such records to prepare card indices and tabular classifications in such manner as to make readily available, on inquiry, the following information:

1. (a) The total number of births occurring annually in the State; (b) the birth rate of the State, that is, the number of births per thousand of the population; (c) the birth rates by races, white and colored; (d) the number of illegitimate births; (e) the number of stillbirths attended by physicians; (f) the number of stillbirths attended by midwives; (g) the number of white births attended by physicians; (h) the number of white births attended by midwives; (i) the number of colored births attended by physicians; (j) the number of colored births attended by midwives; (k) all the foregoing data as to births with respect to each county and city. These facts permit of comparisons of one part of the State with another, of the birth rate of the two races, and of the birth rate of this State with that of the other states and other countries. Such information is necessary in forming conclusions as to vital conditions in North Carolina and in the enactment of suitable legislation for dealing with these conditions.

2. (a) The number of deaths occurring in the State of North Carolina annually; (b) the death rate, that is, the number of deaths per thousand of the population; (c) the number of deaths, by races, and the death rates by races in North Carolina; (d) the number of deaths among infants and young children as compared with the births, and the total deaths as compared with the total births, with net gain in population; (e) the total number of deaths by months and year from each of the 205 causes appearing in the International List of Causes of Death; (f) the number of deaths according to age and the occupation; (g) the number of "seasonal" deaths according to months; (h) all of the foregoing data classified according to county, town and city. This information is absolutely necessary to understand vital conditions in the State; to know where health work is needed, against what causes of death health measures should be directed; and whether the work of health departments is associated with a decrease or no decrease in death rates.

3. Under one and two, information necessary for the public welfare, and available under the operation of the vital statistics law, has been briefly indicated. But the vital statistics law not only supplies information to legislatures, state and county commissioners, and other administrative bodies, which is necessary for framing conservation measures for human life, but it also records facts which may at any time become of great value to the individual. In matters of tracing ancestry, birth records are invaluable; also in matters of proving age where the fact of age is in question, as for voting, as for the right to marry, as for the right to enter certain industries, as to entering school, as to liability for military service, etc.

Methods

The Bureau of Vital Statistics secures the birth and death certificates for the births and deaths occurring in North Carolina through approximately fourteen hundred local registrars, appointed by the chairmen of the boards of county commissioners for the various townships and by the mayors for the various incorporated towns and cities of the State. The duties and powers of the local registrars are defined in chapter 109, section 22, Public Laws of 1913. The county pays the local registrar fifty cents for each birth and death certificate furnished by them to the office of the State Registrar at Raleigh. The vital statistics law makes it the duty of the doctors and midwives in attendance on a birth to file a birth certificate with the local registrar of the district in which the birth occurs, and makes the undertaker, or person acting as undertaker, responsible for filing the death certificate. The birth and death certificates filed with the local registrars of the State are sent to the State Registrar on the fifth of the month succeeding the month in which the birth or death occurred. The certificates received in the office of the Bureau of Vital Statistics are examined, and if incorrect or incomplete (as a large percent of them are), effort is made to secure the information necessary to complete them. Every parent of a legitimate child, whose birth is reported to this office, is sent a card advising them of the date of birth and whether or not name appears on the certificate. This gives the parent an opportunity to send us name of the child in case it does not appear on the certificate, or to make such changes in name or date of birth necessary to make certificate an accurate record of birth. The certificates are then classified and tabulated according to county, township and registration districts, according to races, according to age at death, according to cause of death, according to death rates and birth rates, etc., in order to make readily available, upon request, the information mentioned under the heading of Objective.

Routine Work of Bureau

The routine work of the Bureau of Vital Statistics is indicated in the following table. This covers period from July 1, 1928, to June 30, 1930, inclusive:

Letters received	28,205
Casket dealers reports received	5,857
Supplemental reports received	3,431
Cards received giving names of children	9,969
Violation blanks received	64
Report cards received from local registrars	25,684
Acceptance papers received (local and deputy)	2,970
Individual letters written	17,896
Form letters sent	30,672
Postals sent	167,124
Packages of supplies sent	10,104

CERTIFICATES RECEIVED

Births	160,539
Deaths	75,349
Stillbirths	16,154

INDEXING

Cards made	236,865
Cards proof-read	251,754
Cards assorted	238,518
*Cards copied on sheets for permanent indexing (births)	9,750
Cards filed	255,584
Credit certificates sent to local registrars	1,746
Certified copies made	5,707
Tables made	603
Death cards punched	62,200
Death cards proof-read	41,428
Transcripts made and proof-read	252,019
Cards furnished Epidemiology Divisions giving names of descendents from reportable diseases	6,572
Cards furnished Dr. McCain, giving names of descendants from tuberculosis	4,849
Tabulation of births	152,859
Names of decedents sent in by casket dealers checked with death certificates on file in this office	14,421
Number certifications made in triplicate	5,600
Certificates edited	31,482
Miscellaneous typing (lines)	16,053
Death cards for 1918-1922 being thrown together—approximately	25,000

Results Obtained

Without going into unnecessary detail, it may be said that the objective of this bureau, as aforestated, has been reached, and that all of the information with its vital bearing upon the public health needs of the State and with the public health accomplishments of the State is readily and completely available.

As a mere indication of the practicable value of the work of this bureau, we may point out the fact that the birth rate of North Carolina is very high, the highest in the United States, and that the death rate in North Carolina, notwithstanding the high birth rate, giving us an exceptionally large age group of tender years with high fatalities, is exceptionally low, one of the lowest of any State on the Atlantic or Gulf Coast. To be brief, the vital records of the State show that North Carolina is one of the healthiest States in the Union.

But the most far-reaching result of the Bureau of Vital Statistics is the quickening of public conscience to the need of sanitation and preventive medicine by showing just how many people needlessly perish in each particular county every year from preventable causes.

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*Work on permanent indexing started in May, 1930.

STATE LABORATORY OF HYGIENE

The work of the laboratory can doubtless be best envisioned by an enumeration of the number of specimens examined together with a list of the biologicals distributed. A financial estimate of the value of the work is not included because, while it could be shown that the total retail value of the biologicals exceeds one million dollars or that the value of any one of at least a half-dozen items is far greater than the entire appropriation of the laboratory, still the real service and the real value can only be measured by the service to the public health of the State.

The laboratory as an instrument of public health is one of the distinctive contributions of America to public health practice and in our State the laboratory is at the basis of almost all phases of public health work. To give only two illustrations: (1) It is evident that the venereal disease work would be rudimentary and inefficient without the assistance of the tens of thousands of blood examinations made in the laboratory. (2) A great portion of the practical disease prevention carried on by the county health departments is based on the vaccines distributed by the State Laboratory of Hygiene. If the counties had to buy the typhoid vaccine, for instance, it is very clear that no county health officer would be able to report the immunization of thousands of persons against typhoid fever and it is a safe assumption that this disease would still be rampant in North Carolina.

The work of the laboratory shows through the years a steady growth in almost all lines of work. In the amount of work done there are few States in the Union which surpass it and in those few the annual appropriation is far greater.

During the last biennium, for a period of twenty months an agglutination test for Undulant Fever was made on all specimens of blood received, except those sent for the Wassermann test. It has been demonstrated by these tests, which agree with those made in other states, that this disease is very rare in human beings and it is a fair conclusion that the drinking of milk is not an important cause of infection.

The laboratory has coöperated with the United States Public Health Service and the Rosenwald Fund in the venereal disease investigation in Pitt County. The laboratory's part in the investigation has been the examination of specimens of blood and these were sent from practically the whole negro population. The result of these examinations would indicate a syphilitic infection of about thirteen per cent in the negroes of Pitt County.

The rabies situation remains practically the same. From 1908 to 1925 there was a steady rise in the incidence of rabies in animals and in the number of persons exposed to infection. Since 1925 there has been a gradual slow decline due to better enforced dog laws in the municipalities and to the partial protection afforded by the canine prophylactic vaccine. However, North Carolina still bears the stigma of being among those states showing highest rabies infection. Since rabies is one of the few diseases which could actually be exterminated, its presence in any country is a serious reflection on its civilization.

During the past year the laboratory has endeavored to encourage the sending of blood for culture because by this method it is possible to make an earlier diagnosis of typhoid fever than by the agglutination test. There has been a good response and the work is satisfactory except for the fact that it is one more burden coming at a time when the income of the laboratory is materially reduced.

In the two years there were examined 166,941 specimens of various kinds. This is an average of about sixty-five more per day than were examined in the preceding biennium.

The needs of the laboratory are simply a larger appropriation to take care of increased demands and to give opportunity for the adequate testing of new methods and new vaccines and antitoxins.

Biological Products Distributed

Diphtheria	
Antitoxin (Units)	281,883,000
Toxin Antitoxin (Doses)	777,668
Schick Tests	121,050
Smallpox Vaccine	634,849
Typhoid Vaccine (Doses)	1,472,401
Rabies Treatment (Complete—21 doses each)	2,080
Neo Arsphenamine (Ampules)	47,765
Tetanus Antitoxin (Units)	35,723,000
Pertussis Vaccine (Doses)	134,520
Scarlet Fever Antitoxin (Syringes)	316
Dick Test	1,340
Blanching Test	142
Distilled Water (Ampules)	5,980
Autogenous Vaccine	169
Erysipelas Antitoxin (Syringes)	19
Antivenene (Syringes)	5
Meningitis Antitoxin (Syringes)	16

Diagnostic Examinations Made

	Total	*Positive*	*Negative*
Diphtheria			
Examinations, Bacteriological	10,188	1,615	8,573
Animal Inoculations	12		
Typhoid			
Agglutination Tests	3,183	51	3,132
Blood Cultures	762	105	657
Feces and Urine Cultures	2,566	25	2,541
Venereal Diseases			
Gonococcus	3,500	1,176	2,324
Wassermann	119,860		

Blood	
Negative	91,442
Four Plus	14,929
Three Plus	3,918
Two Plus	3,524
One Plus	3,007
Haemolyzed	1,784
Unsatisfactory	346

Spinal Fluid	
Negative	734
Four Plus	42
Three Plus	17
Two Plus	21
One Plus	26
Unsatisfactory	70

		Total	*Positive*	*Negative*
Tuberculosis				
Sputum, Bacteriological		5,021	732	4,289
Animal Inoculation		26	....	....
Rabies				
Microscopic Exam. of Brains		2,046	733	1,313
Animal Inoculations		625	....	....
Malaria Blood Smears		1,495	59	1,436
Urinalyses		387	....	....
Water Analyses				
Bacterial and Chemical		8,699	....	....
Typhus Fever, Agglutination		37	2	35
Undulant Fever				
Microscopic Agglutination		325	12	313
Microscopic Agglutination		1,826	9	1,817
Vincent's Angina		1,621	693	928
Tissue Examinations		482	....	....
Miscellaneous		557	....	....
Feces, Intestinal Parasites				
Number of Examinations		3,723		3,380
Hookworm	207			
Ascaris	108			
Strongyloides	1			
Hymenolepis	16			
Trichiuris	9			
Oxyuris	1			
Taenia	1			
Total		166,941		

CANCER CONTROL PROGRAM

BY

H. HARTWELL BASS, M. D.

Chairman, North Carolina Committee of the American Society for the Control of Cancer

The Chairman of the North Carolina Committee of the American Society for the Control of Cancer, as Constituted and Appointed by the Medical Society of the State of North Carolina, Hereby Makes his Annual Report to the State Board of Health, the Medical Society of the State of North Carolina and the Conjoint Session of These Two Organizations.

During the last Legislature the following resolutions were formulated:

"Whereas, in North Carolina cancer is now causing the death of fifteen hundred (1500) citizens of the State annually; and

"Whereas, the deaths from cancer in North Carolina have been steadily increasing in number, year by year, for a period of years; and

"Whereas, the deaths in North Carolina from this disease cause an economic loss in excess of fifteen million dollars annually; and

"Whereas, in connection with the annual meeting of the Medical Society of the State of North Carolina held at Pinehurst in April, 1928, a North Carolina division of the American Society for the Control of Cancer was organized with the following executive committee elected: Dr. Charles O'H. Laughinghouse, Raleigh, President; Dr. L. A. Crowell, Lincolnton, Vice-President; Dr. A. C. Bulla, Raleigh, Secretary-Treasurer; Dr. W. C. Davidson, Durham, Dr. W. S. Rankin, Charlotte, Dr. Wm. DeB. MacNider, Chapel Hill, Dr. Thurman Kitchin, Wake Forest, Dr. John W. MacConnell, Davidson, Dr. Issac H. Manning, Chapel Hill, Dr. L. B. McBrayer, Southern Pines, Dr. E. Delia Dixon Carroll, Raleigh, Dr. Anna M. Gove, Greensboro, Dr. John MacRae, Asheville, Dr. Marjory Lord, Asheville, Dr. W. D. James, Hamlet, Dr. H. B. Ivey, Goldsboro, Dr. L. S. Booker, Durham, Dr. F. R. Taylor, High Point, Dr. John T. Burrus, High Point; and

"Whereas, Dr. H. Hartwell Bass of Durham was selected by the Medical Society as State Chairman for North Carolina and was directed to conduct an intensive educational campaign in the State in coöperation with the North Carolina State Board of Health and the Medical Society of the State of North Carolina for the purpose of acquainting the citizenship of the State with the known scientific facts about cancer, its prevention and its treatment; and

"Whereas, the said State Chairman, Doctor H. Hartwell Bass, is giving his time and energy to this cause without compensation and at considerable expense to himself;

"Therefore, Be it enacted by the General Assembly of North Carolina:

"Section 1. The sum of twenty-five hundred dollars ($2500.00) is hereby appropriated annually for the fiscal year 1929-30 and 1930-31 to the North Carolina Committee of the American Society for the Control of Cancer of which Doctor H. Hartwell Bass of Durham is State Chairman for the purposes of paying necessary expense of clerical assistance, postage, stationery, travel expense, and other incidental expenses: *Pro-*

vided, that no part of the sum herein appropriated shall be used as payment of salary to the State Chairman of the Committee or the salary of any member of the Committee.

"Section 2. This act shall be in force from and after its ratification."

These resolutions were not enacted into law, but they brought the question of cancer control to the attention of the Appropriations Committee, which committee appropriated $2,500 annually for the fiscal years of 1929-30 and 1930-31 for the purpose designated by the resolutions. This was done by writing into the budget of the State Board of Health the sum of $5,000 for Cancer Control, to be expended by the State Chairman for Cancer Control under the direction of the State Board of Health.

The Chairman of the State Society for Cancer Control proceeded:

(1) To organize a North Carolina Society for Cancer Control, this Society being a unit of the American Society for Cancer Control.

(2) To conduct an intensive educational campaign throughout the State.

(3) To ascertain and correlate the facilities for treating cancer in the State.

The organization of the North Carolina Society for Cancer Control was consummated as follows:

By requesting each county medical society to appoint a permanent cancer committee to affiliate with the State Society for Cancer Control and coöperate with the State Chairman of the American Society for the Control of Cancer. The following counties elected these committees:

Buncombe County—Doctors A. B. Craddock, Chairman, Marjory J. Lord, W. P. Herbert, J. D. MacRae.

Yancey County—Doctors C. A. Cheadle, John B. Gibbs, Wilber B. Robertson.

Carteret County—Doctors B. F. Royal, C. S. Maxwell, K. P. B. Bonner.

Durham County—Doctors R. L. Felts, D. L. Perry, L. S. Booker.

Forsyth County—Doctors W. H. Sprunt, E. A. Leggett, M. A. Bowers, J. F. Belton.

Guilford County—Doctors C. C. Hudson, J. W. Tankersley, J. T. Mann.

Halifax County—Doctors J. W. Martin, O. F. Smith, L. E. McDaniel.

Hoke County—Doctors R. Murray, I. P. Matthewson, P. P. McCain.

Iredell County—Doctors R. S. McElwee, Davis McClelland, J. W. Davis.

Johnston County—Doctors W. J. B. Orr, S. A. Duncan, G. S. Coleman.

Lenoir County—Doctors E. R. Boney, W. T. Parrott, Frank Sebastian, W. H. Dixon, F. P. Wooten, I. M. Hardee, R. S. McGeachy.

Lincoln County—Doctors W. F. Elliott, J. R. Gamble, R. E. Lee.

Mecklenburg County—Doctors J. P. Munroe, R. H. Lafferty, R. B. Knight.

Onslow County—Doctors C. W. Sutton, E. L. Cox, Cyrus Thompson.

Rockingham County—Doctors J. B. Ray, J. W. McGehee, H. C. Dixon, L. L. Anderson, N. G. Wilson.

Rutherford County—Doctors C. F. Gleen, T. C. Lovelace, W. C. Bostic.

Union County—Doctors G. M. Smith, J. E. Thomas, C. A. Bolt.

Wake County—Doctors Chas. R. Bugg, A. S. Oliver, C. E. Flowers.

Wayne County—Doctors H. B. Ivey, W. H. Cobb, James Rose, making in the aggregate nineteen counties which appointed permanent Cancer Committees.

The following counties did not appoint permanent Cancer Committees but assisted in the distribution of literature and such other services as they were called upon to perform:

Wilson County—Dr. L. J. Smith, whole-time county health officer.

Alamance County—Dr. W. R. Goley.

Anson County—Dr. L. C. Smith.

Martin County—Dr. W. E. Warren.

Beaufort County—Dr. R. E. Windley, whole-time county health officer.

Bertie County—Dr. J. E. Smith, whole-time county health officer.

Caldwell County—Drs. W. M. White and R. W. Petrie.

Cherokee County—Dr. W. C. Morrow, whole-time county health officer.

Cleveland County—Dr. D. F. Moore, Dr. J. W. Hardison, Dr. J. W. Wood.

Craven County—Dr. D. E. Ford, whole-time county health officer.

Edgecombe County—Dr. R. E. Broadway, whole-time county health officer and Dr. H. L. Large.

Granville County—Dr. J. A. Morris, whole-time health officer.

New Hanover County—Dr. J. H. Hamilton, whole-time county health officer.

Northampton County—Dr. M. H. Seawell, whole-time county health officer.

Pitt County—Dr. Clem Ham, whole-time county health officer; Dr. C. C. Joyner.

Robeson County—Dr. E. R. Hardin, whole-time county health officer.

Vance County—Dr. F. R. Harris, whole-time county health officer.

The Metropolitan Life Insurance Company and the Pilot Life Insurance Company, through their agencies in all parts of the State, assisted materially in distributing literature.

In the following counties the organization consisted of county boards of education, and literature was distributed directly through the teachers of the county and the Parent-Teachers' organizations:

Gaston, Cumberland, Alamance, Chatham, Columbus, Haywood, Jackson, Jones, McDowell, Nash, Pamlico and Swain.

Book Clubs and Parent-Teachers' Association and Women's Clubs from all sections of the State volunteered their service and assisted materially in the distribution of literature.

This organization, above detailed, and under the direction of Dr. Bass, conducted a campaign by:

(a) An earnest endeavor to procure the coöperation of the physicians and the public. Every physician, every county board of health and every county health department was urged to take part in the work by appointing a local Cancer Committeee to coöperate with the State Committee in furthering cancer control in their respective counties.

Unremitting effort has been and is now being made to interest religious, business, civic and social organizations in the subject of cancer control. Constant correspondence and newspaper publicity stressing the need for organization has been and is being carried on without ceasing.

Talks have been made before these organizations and in the various educational institutions of higher learning in the State. Papers on cancer and its control have been delivered at the county and district medical societies. The second week in October was designated as *Cancer Week* throughout the State. Prior to this date three hundred thousand bulletins and pamphlets were distributed. The press was flooded with the importance of cancer control. Twenty radio talks were made from stations in Raleigh, Greensboro, Charlotte and Asheville. The press was again and again filled with newspaper articles. Cancer reels were shown in various sections of the State. Questionnaires were mailed to individual physicians to ascertain the number of cases of cancer each physician had in his practice. Questionnaires were also mailed to the hospitals of the State:

(1) To ascertain their facilities for treating cancer.
(2) To ascertain the number of hospitals owning or renting radium.
(3) The number of hospitals not using radium.
(4) The number equipped with deep therapy X-ray.
(5) The number equipped with moderate voltage X-ray for therapy.
(6) The number of beds occupied by cancer patients.
(7) The number set aside for treatment of cancer patients alone.
(8) The number owning deep therapy apparatus for free treatment of charity patients.
(9) The number with organized cancer clinics.

Twenty-eight counties held free diagnostic clinics. Thirty-nine distributed literature without holding clinics. We have records to show that fourteen hundred examinations were made. Four hundred and sixty-five incipient cases and three hundred and thirty-four active cases, totaling seven hundred and ninety-nine cases, were discovered and recorded. We assume a great many other cases went to the offices of private physicians.

By the law of averages, this means that there are more than five thousand active cases and more than six thousand incipient cases of cancer in the State today. Out of ninety-four hospitals in North Carolina with a bed capacity of 4,885, replies were received from sixty with a bed capacity of 3,301. The number not using radium was *thirty-six.* The number of hospitals owning and renting radium was *twenty-four.* The number equipped with deep therapy X-ray—*nine.* The number equipped with moderate voltage X-ray therapy was *twelve.* The number of beds occupied by cancer patients was three and a half per cent of the total number of patients. The number of beds set aside for treatment of cancer patients—*none.* The number of hospitals owning deep therapy apparatus where charity cases could receive free treatment—*none.* The number of permanently organized cancer clinics—*none.*

The following recommendations are submitted to this Conjoint Session:

(1) That all medical centers in the State be urged to organize and equip permanent cancer clinics for the diagnosis and thorough treatment of cancer.

(2) That the question of a central hospital properly equipped with diagnostic facilities, radium, deep therapy X-rays, high voltage, and all things else necessary to the successful treatment of cancer be submitted

to a joint committee composed of representative from the North Carolina Hospital Association and the Board of Councillors, their conclusions to be presented to this Conjoint Session at its meeting in 1931.

(3) In the event such an institution is approved, this Conjoint Session should submit for acceptance or rejection, definite proposals for a research cancer board composed of the members of the Medical Society of the State of North Carolina.

(4) That all general hospitals adopt a cancer service with standards set forth by the American Society for Cancer Control.

(5) That all physicians and hospitals not equipped for the diagnosis and treatment of cancer, avail themselves of the service necessary to proper treatment through contacts and arrangements with hospitals and cancer clinics equipped to give such service as modern medicine and surgery furnishes and demands.

(6) That the public be educated to frown down upon inadequate treatment, quacks, charlatans and cancer cures.

(7) That an earnest effort be continued to educate people that cancer can be cured when taken to physicians in the pre-cancerous and incipient stages.

(8) That the profession be urged to use the State Laboratory of Hygiene and private laboratories for the diagnosis of suspected tissues.

(9) That the Legislature be urged by this Society and individual physicians to continue and increase financial support for the purpose of reducing the death rate of cancer in the State of North Carolina.

REHABILITATION ORTHOPEDIC CLINICS

By

H. L. STANTON

At a meeting of the orthopedic surgeons of the State held in August, 1925, a plan of organizing and conducting permanent orthopedic clinics throughout the State presented by H. L. Stanton, State Supervisor of Vocational Rehabilitation, was adopted.

The State was divided into zones and a zone assigned to each of the orthopedic surgeons who had expressed a willingness to coöperate with the Department in the holding of clinics. There were seven in number—Dr. Walter Cole of Greensboro, Dr. J. S. Gaul of Charlotte, Dr. Edward King of Asheville, Dr. Robert A. Moore of Winston-Salem, Dr. Alonzo Myers of Charlotte, and Dr. Hugh Thompson of Raleigh.

These surgeons pledged themselves to hold clinics once a month at the agreed places, to examine free of charge all cripples referred to the clinic by the Department or local physicians, and to treat all indigent cripples in the clinic or in a hospital, if an operation should be required, without compensation for their services. One surgeon travels eight hundred miles and devotes two days of his time each month to the holding of one of these clinics.

Not until this the fifth year of operation of these clinics has any compensation been paid to these surgeons. From a small appropriation made by the last legislature to the State Board of Health to aid in the financing of orthopedic clinics a small fee is being paid for the holding of these clinics. The Board expects to be able to increase this fee during the next fiscal year.

Clinics are established only at points where some local organization has agreed to sponsor a clinic and to meet all necessary expenses, including equipment, supplies and travel expenses of the orthopedic surgeon. No difficulty has been experienced in interesting service clubs, Rotary, Kiwanis, and Lions, in supporting these clinics. In some cities more than one club has expressed a desire for the honor and privilege of sponsoring a clinic.

Clinics have been established at nineteen different points in the State. With few exceptions these clinics have been operated a year or more. The first clinic was established in Fayetteville under the auspices of the Fayetteville Kiwanis Club in September, 1925, and has been in monthly operation ever since. Other clinics that have been in continuous operation for several years are located at Asheville, Charlotte, Winston-Salem, Wilson, Elizabeth City and Wilmington.

These are more than diagnostic clinics. Hundreds of babies and small children have had their deformities corrected in the clinics through stretching and application of plaster casts, braces, orthopedic shoes and corrective exercises without a day of hospital care. They report to the clinics once a month and remain at home with their relatives during the entire period of treatment. The average cost of treating clinical cases has been $3.67.

Those treated in hospitals have had their hospital expenses greatly reduced by being permitted to return home after a short hospital stay, and reporting to a clinic once a month for further treatment and observation. With but few exceptions the hospital period has been only from ten days to two weeks with an average cost of $43.79 for hospital care.

During the four years in which these clinics have been in operation we have averaged holding more than a hundred operative clinics a year. They are well attended, having had an average of 1,200 cases per year, ranging from babies two weeks old with congenital deformities, brought in by the doctors that delivered them, to adults in the sixties.

During the past year ninety-nine clinics were held, at which 1,383 examinations were made and 434 treatments given. In addition to this 71 clinical cases were operated on in hospitals.

Some of the outstanding advantages of these clinics are:

1. They acquaint the public with the possibilities of correcting deformities by orthopedic treatment and popularize and humanize the idea.
2. They place skilled orthopedic treatment within the reach of everyone.
3. Where the correction can be made without operation the cost of treatment in the clinic is practically nil as compared with the cost of hospital treatment, and furthermore the patient does not have to be separated from his family.
4. Regular, frequent follow-up can be made to see that no reversion occurs.

MINUTES

Meetings of the Board

and

The Executive Committee

MEETING OF EXECUTIVE COMMITTEE

JULY 10, 1928

By direction of the President a meeting of the Executive Committee was called to take place at the office of the President in Charlotte on July 10th, 11 a. m. Doctors Crowell, Thompson and Anderson were present. The following business was transacted:

1. Because of information from Doctor E. J. Wood of Wilmington that sporadic cases of endemic typhus fever of a mild type were occurring in and around Wilmington, and because Doctor William Allen of Charlotte also reported sporadic cases of typhus fever of a mild type as having been seen from time to time over a period of several years, and because three cases of endemic typhus fever occurred and around Clinton during the past month, it was believed best to at least discuss the advisability of making typhus fever immediately reportable in North Carolina. After a thorough discussion of the question by the executive committee, it was agreed that on account of the fact that typhus fever becomes epidemic only in thickly populated districts, and because of its being a winter rather than a summer disease, the Board need have no undue apprehension concerning its spread just at the present time. The executive committee directed the State Health Officer to advise all county health officers of the existence of typhus fever and request them to keep it in mind and in addition to this, to write the presidents and secretaries of the county societies in the State advising them of the existence of typhus fever and requesting them to acquaint the profession throughout the State of the existence of it so that in the event of the possibility of an epidemic the profession would be forewarned. It was further decided to give as little publicity as possible to the existence of typhus in the papers unless other cases were reported in the future.

2. Doctor Register, director of the Bureau of Vital Statistics, having requested a return to the plan of piece work in the transcribing of birth and death certificates, as per letter hereto attached, the executive committee decided to leave the disposition of Doctor Register's request entirely to the State Health Officer. The committee was unanimous in the opinion that the work should be done on a salary basis as it now exists or should be entirely changed to a piece basis. The committee was unanimous in disapproving part of the work being done on a salary basis and a part being done on a piece basis and expressed the desire of being recorded as having taken this position.

3. Doctor C. C. Taylor, Dean, Graduate Department State College, advised that a regional meeting of the National Society for the Advancement of Country Life was being held at Blue Ridge on July 11th and 12th. The Board was invited to take part in this meeting. Immediately upon adjournment of the Executive Committee the President of the Board, Doctor Thompson and the State Health Officer went to Blue Ridge where the offer of undivided coöperation on the part of the Board of Health was submitted to the meeting.

CHAS. O'H. LAUGHINGHOUSE,
Secretary.

LETTER FROM DR. REGISTER

Raleigh, N. C.
June 29, 1928.

Dr. Chas. O'H. Laughinghouse,
Secretary State Board of Health,
Raleigh, N. C.

Dear Sir:

On account of recent developments, I am again asking that transcribing be put on a piece basis. We have three people on this work—and they just keep up. Now, one of them is sick in the hospital on account of an operation, and will probably be out for a couple of months. We have no assurance that this will not happen to the other two, and the work will lag behind, and cause the State Board of Health to get uncomplimentary letters from the Bureau of Census, Washington, D. C.

In a terse, short way, I am going to give you a few reasons for doing this work on a piece basis.

1. The State Board of Health is paid by Washington for this work on a piece basis, and there could be no criticism of the State Board of Health, in having it done on the same basis.

2. All states, with probably the exception of three, have transcribing done on piece basis.

3. We did this work most satisfactorily this way, up to about two years ago, and were never behind with our transcribing.

4. Heretofore, we made a profit of $800.00 yearly, on doing the transcribing on piece basis. We did this by not paying as much per transcript, as we were paid. There was no objection to this, as it was divided among so many people, and they did not have to depend on it for a living, but was merely extra money for extra work.

5. Mr. Nash, the Assistant Attorney General, tells me that this money received from Washington, does not have to go into the State Treasury, nor does it have to be budgeted, since I merely act as Special Agent for the Bureau of Census in having this work done. They send me the money to pay for work done at so much per certificate.

6. There has never been a book lost by transcribers, since I have had charge of this work.

7. This work, as it is done now, is the only work in State Departments, which has to be laid out in tasks by the head of the Department. We have to lay this work out in tasks to the three people who do the work. I am sure this would be objectionable to the head of any department. There is no other way out, under our present system. If the work is done at so much per certificate, the workers assume their own tasks.

8. Transcribing, with no chance to expand and take care of the work when sickness or vacations come, jolts this department like riding in an automobile with all the springs broken—no elasticity.

9. Mr. Jermaine, an expert from the Bureau of Census, Washington, D. C., a man who has been engaged in vital statistics work for years, and a man that is familiar with every bureau of vital statistics

in the United States, unqualifiedly stated that the piece basis was the only efficient way to have this work done.

We might go on at great length, but I shall close with a statement of my plan for doing this work.

Plan of Work

Put this work on piece basis, pay three cents per certificate to the three people who now do the work, giving each one, as nearly as possible, one third of the work, and in addition to doing the transcribing, they would send out the cards announcing the 84,000 births occurring annually, at no additional cost. Their fees for transcribing would average about $100.00 per month, per person, and while this would vary of course, per month, it would be around $1200.00 per year. We would make no profit on the work, except the extra work of getting the cards out, but this would leave the people who now do that, time to do other work.

If one, two or three of the transcribers were sick over a long period, and we saw that we were getting behind with this work, we could at once farm the work out among those who know the work, and get back to normalcy in a short time.

If you get a decision that we can do the work on a piece basis, *I am sure there will be no trouble to work out a plan that will be satisfactory to all parties.*

I hope a decision will be handed down at the earliest possible moment, as every day that we delay, means slowing down our work.

Yours very truly,

(Signed) F. M. **REGISTER.**

MEETING OF EXECUTIVE COMMITTEE

September 20, 1928

A meeting of the Executive Committee was called for 10 o'clock Thursday morning, September 20th. Dr. A. J. Crowell, President, was present. A message from Dr. Thos. E. Anderson stated that because of illness he was unable to be present. Dr. Cyrus Thompson wired that floods made it impossible for him to reach Raleigh.

The President and the Secretary went into a study of the proposed budget for the biennium of 1929-31 and approved same for submission to the Budget Commission as follows:

	1929-30	*1930-31*
Administration	$ 30,260	$ 31,140
County Health Work	130,215	150,215
Engineering and Inspection	89,990	88,150
Epidemiology	15,055	15,535
Health Education	12,600	13,500
Life Extension	9,100	9,100
Maternity and Infancy	60,225	62,845
Medical Inspected Schools	73,405	73,405
Vital Statistics	29,740	29,740
Printing	27,500	27,500
Total	$478,090	$501,130
Less Estimated Receipts	14,800	14,800
Net Appropriation	$463,290	$486,330

Chas. O'H. Laughinghouse,
Secretary.

ANNUAL MEETING OF BOARD

April 15, 1929

The Board met in the King Cotton Hotel at 11:30 p. m. with the President, Dr. A. J. Crowell, presiding and the following members present: Dr. Cyrus Thompson, Dr. D. A. Stanton, Dr. John B. Wright, Dr. Chas. C. Orr, Dr. Thos. E. Anderson, Dr. L. E. McDaniel and Mr. James P. Stowe. Dr. E. J. Tucker, present in the city, asked to be excused from attending because of the lateness of the hour.

Reading of minutes of last meeting was temporarily postponed.

The Secretary presented to the Board for consideration proposed rules and regulations governing the sanitary management of city or municipal jails, and upon motion of Dr. Thompson, seconded by Dr. Stanton, the following rules and regulations were unanimously adopted as authorized by Consolidated Statutes, Chapter 130, Section 7713, as amended by Public Laws, Session of 1925, Chapter 163.

Regulations Governing the Sanitary Management and Construction of City Jails

All city jails shall be constructed and maintained in compliance with the regulations hereinafter prescribed.

Upon inspection of a city jail the inspector shall approve if all the regulations are being complied with. The card "approved jail" shall then be posted in a conspicuous place designated by the inspector. If any of the regulations are not being complied with, the inspector shall disapprove and the card "disapproved jail" shall be posted in a conspicuous place designated by the inspector.

Reinspections may be had upon written request by the officials responsible for the conduct of the city jail.

I—Building

1. (a) All new city jail buildings constructed shall be fire-proof structures.
   (b) All jail buildings shall be free from fire hazards and danger.
2. Heating arrangements shall be provided to keep the jail quarters comfortably warm during cold weather.
3. (a) The building shall be provided with sufficient compartments in the jail so the races, sexes and juvenile prisoners may be properly separated in the prison quarters.
   (b) The jail shall be provided with at least four separate compartments.
   (c) Isolation room for sick prisoners should be provided in separate quarters.
4. (a) The jail shall be provided with not less than 500 cu. ft. of air space for each prisoner incarcerated.
   (b) At least 2 square feet of window spacing or grating shall be provided for each prisoner, arranged to give an equal distribution of light and ventilation over the jail compartments.
5. Adequate drainage for the jail floor and equipment shall be provided.

6. Adequate lighting arranged to permit the reading of ordinary news print shall be provided for the jail compartments.

7. The jail shall be provided with a system for carrying water which will be accessible for drinking purposes in each of the compartments and cells used for the incarceration of prisoners.

8. The jail building shall be kept in good repair at all times.

II—Sewage and Waste Disposal

1. (a) Convenient and accessible toilets shall be provided for each sex, kept clean and well ventilated.

   (b) The excreta shall be disposed of by connecting to the public sewerage system when available, by disposal through a system of sewage treatment approved by the North Carolina State Board of Health, or by means of a sanitary privy constructed and maintained in accordance with the regulations of the State Board of Health.

2. (a) All garbage shall be placed in garbage cans and removed as often as necessary.

   (b) The jail shall be kept free from particles of meat, bread, fruit and foods.

   (c) All trash, rubbish and decomposing matters shall be kept from the jail compartments and surroundings.

   (d) The jail shall be kept free from any fly-breeding materials and obnoxious odors.

III—Sanitary Maintenance

1. (a) The jail walls, floors and ceilings shall be kept free from dust, dirt, cobwebs, mold, slime, filth, grease, and bad odors at all times.

   (b) Spitting on the walls, floors and the jail building shall not be permitted.

   (c) The jail shall be maintained in a sanitary manner at all times and otherwise kept clean.

2. The surroundings of the jail area under the jurisdiction of the management shall be kept clean and free from standing water, rubbish or filth of any kind at all times.

IV—Beds, Bedding and Furniture

1. (a) Individual cots or beds shall be provided for prisoners and arranged for free circulation of air under each.

   (b) Each bed or cot shall be provided with a mattress or tick filled with straw (if tick, straw must be removed as often as necessary to keep clean) and covered with either slips or sheets.

   (c) Sheets or slips shall be kept clean at all times and any slip or sheet previously used which is soiled shall not be used on cot or bed for another prisoner until it has been washed and cleaned before using.

   (d) Sufficient bedding shall be provided to keep prisoners warm and comfortable.

(e) All bedding and bed clothing shall be kept clean and free from dirt, filth and vermin and shall be aired in the sun at least once a week, weather permitting.

2. (a) Seats or benches sufficient for seating all prisoners shall be provided.

(b) Adequate cuspidor facilities shall be provided and shall be emptied and cleaned at least daily.

V—Bathing

1. Sufficient bathing facilities should be provided for the jail with accessible running water.

VI—Water Supply

1. The water supply conveniently located shall be obtained from an approved public water supply when available and in other instances shall be obtained from a source not considered dangerous or potentially dangerous as determined by a sanitary survey by a representative of the State Board of Health and by bacteriological examination of one or more samples of water tested by the State Board of Health.

2. (a) A cooler or a closed container with a spigot shall be provided.

(b) The common dipper or cup shall not be used.

VII—Clothing

1. Common sense shall be exercised for providing prisoners with sufficient clothing suitable for the season.

VIII—Food

1. (a) Prisoners shall be provided with a sufficient quantity of food during each of the 24 hours of incarceration as required under authority of Section 3919 of the Consolidated Statutes.

(b) The food shall be balanced with a quantity of protein, fat and starch. Protein is found largely in the following foods: Lean meat, fish, cheese, butter, eggs, and dried beans. Fat in fat meats, butter and milk. Starches in cereals, potatoes, rice, grits and breads. In addition to all other foods at least one meal during each day shall contain one or more green vegetables or fruit.

IX—Contagious Diseases

1. (a) Prisoners suffering from any infectious or contagious disease shall not be incarcerated in a manner so as to expose or cause a contact with any other prisoner in the jail.

(b) Prisoners suffering from tuberculosis shall be cared for as provided in Section 7213 and 7220 of the Consolidated Statutes.

X—Physical Records

1. All prisoners held in the jail over 48 hours after admission shall be given a physical examination by a physician or health officer and a record made of the physical condition as prescribed in Section 7218 of the Consolidated Statutes.

The Secretary presented to the Board for consideration proposed rules and regulations affecting watersheds as authorized by Consolidated Statutes, Chapter 118, Article 7, Section 7117, and upon motion of Dr. Thompson, seconded by Dr. Orr, the following rules and regulations were unanimously adopted:

REVISED WATERSHED REGULATIONS BY REPEALING WATERSHED REGULATIONS CONTAINED IN SPECIAL BULLETINS 4, 5, and 6, RULES FOR THE PROTECTION OF WATERSHEDS FROM 20 to MORE THAN 100 SQUARE MILES AREA RESPECTIVELY, and ADOPTING IN LIEU THEREOF THE FOLLOWING:

1. No boating, bathing or wading shall be permitted in any public water supply reservoir lake or pond, or in any streams tributary to the same within a distance of five miles from the water works intake.
2. Fishing in water supply lakes, ponds, or reservoirs, is prohibited except that it may be permitted by the municipality owning such water supply, upon the conditions that (a) The governing body shall first make application to the State Board of Health for authorization to permit fishing in such reservoirs, such application to be accompanied by certified copy of resolution from the minutes of such board or governing body setting forth that the following provisions will at all times be conformed to:
    (1) That the volume of the reservoir, lake or supply pond will be constantly maintained equal to or in excess of 60 days supply calculated upon the maximum daily consumption as the day unit.

    (2) That fishing will only be permitted from boats owned or controlled by the said municipality and at all times under supervision of a sworn officer of the municipality.

    (3) That a sufficient number of watershed inspectors will be employed at all times to insure that no bank fishing is permitted and that indiscreet acts of any character are not committed by persons living on the watershed or frequenting same.

    (4) That definite ordinances are legally passed regulating the general conduct of persons fishing in said lake and providing adequate penalties for indiscreet acts committed on the reservoir or adjacent watershed.

    (5) That a fishing dock or docks will be provided for the purpose of docking boats and that no boats shall enter or leave the lake except from the docks provided and not otherwise, and that the rules submitted with the application will be rigidly enforced, if approved by the State Board of Health.

    (b) With such request there shall be submitted proposed rules and regulations in detail governing fishing in the reservoir in connection with which application is submitted.

(c) Upon the official approval of such rules by the State Board of Health, and upon the adoption of such rules by the municipal governing body, such rules shall automatically become a supplement to these regulations, having application only to the reservoir for which they are approved.

(d) Upon failure by the municipality to thoroughly and effectively enforce such rules, or for other adequate cause, the State Board of Health hereby reserves the right to withdraw approval of such rules and also to withdraw the authorization granted for the permission of fishing.

3. No plowing, cultivating or pasturing shall be permitted within fifty feet of such reservoirs or ponds; such fifty-foot margin shall be kept free by the municipal or the private water company from briar or thicket growth, but tree and shrubbery growth shall be cultivated thereon, under proper conditions for conserving the purity of the water.

4. No public highway or railroad shall be established within twenty feet of the margin of such reservoir or pond.

5. No picnicking or camping shall be permitted on the watershed except with adequate sanitary provisions for the disposal of excreta, approved by the State Board of Health, and use of same rigidly regulated to prevent pollution of the watershed area. All trash and rubbish shall be kept collected in containers, and shall be burned, or removed from the watershed, provided that no camping or picnicking whatsoever within two hundred and fifty feet of the margin of the reservoir or its tributaries shall be permitted within a distance of five miles from the waterworks intake.

6. The wallowing of hogs and other animals in and along the streams, and similar abuses, shall not be permitted within five miles of the water supply intake.

7. No spreading of any barnyard manure or compost shall be permitted within two hundred and fifty feet of the margin of said reservoirs or ponds or any streams or tributaries thereto without being plowed in or otherwise covered within ten hours after being spread. This rule shall apply only within a distance of five miles of the waterworks intake.

8. No hog pen, cattle pen, horse or mule lot, poultry house, hitching or standing place for horses or cattle, or any other place where animal manure accumulates, shall be maintained or used within three hundred feet of any of said reservoirs, ponds, streams and tributaries. All such pens and lots shall be cleaned at least once a month, and the accumulated manure or other decaying matter disposed of in the barnyard manure pile or compost heap, or it may be spread upon the land in a manner not in conflict with rule No. 7. This rule shall apply within a distance of five miles of the waterworks intake.

9. No human excrement or urine shall be voided or deposited within a distance of one hundred feet from the margin of said reservoirs, ponds, streams, branches, springs or other tributaries thereto, nor shall any water that has been used for washing clothing, bedding, carpets, harness, persons, horses, cattle or other animals, nor any garbage, house slops, kitchen waste, or other form of decaying, foul, noxious or putrescible matter, either solid or liquid, be thrown, spread or otherwise deposited on the surface of the ground within said one hundred-foot margin. No washing or clothing, bedding or carpets shall be done within a distance of two hundred feet, from the margin of said reservoirs, ponds, streams, branches, springs or other tributaries thereto.

10. No collection of human excrement or urine shall be deposited in a barnyard manure pile or compost heap, nor upon the surface of the ground within the area of the watershed, nor shall such matter be otherwise deposited thereon, except it be buried with at least one foot of cover. This rule shall apply within a distance of fifteen miles of the waterworks intake.

11. No dwelling houses, or other place where persons reside, congregate or are employed, shall be built or maintained on watershed without being provided with a sanitary privy or system for the disposal of sewage constructed and maintained in accordance with the rules and regulations of the North Carolina State Board of Health.

12. No carcass of any dead animal, nor animal offal, shall be thrown into any stream, reservoir or pond, nor deposited upon the surface within the area of the watershed, nor shall any such carcass be permitted by the owner of the land where found to remain unburied for a period exceeding ten hours after being known to, found by, or reported to, such owner. Such carcass shall be buried with not less than two feet of cover at a point distant from any of said streams or tributaries not less than five hundred feet, except in cases where a carcass may be found that has decomposed to such extent as to prevent its removal, when it may be buried near the point found, but distant not less than fifty feet from any stream or tributary.

13. No burial ground shall be established within five hundred feet from the main stream nor three hundred feet from any tributary stream within a ten-mile limit from the point of intake.

14. No construction camps for railroad or highway building shall be established or maintained within the area of the watershed, nor shall any number or group of laborers be employed on such construction or in lumbering or similar operations within the watershed area, without giving advance notice thereof to the mayor of the city or town deriving its water supply therefrom, and to the Secretary of the State Board of Health, who will prescribe rules and regulations to govern the conduct of such work pertaining to the sanitary protection of the water supply during such operations. This rule shall apply within a distance of twenty miles of the waterworks intake.

15. No parks or other places of resort for the use and entertainment of the public shall be established or maintained on the watershed except upon condition that provision shall be made for the collection of sewage and garbage and its disposal, to be approved by the State Board of Health, and that the park and its environments shall be effectively patrolled at all hours when such park is open and in general use, to secure the observance and enforcement of all the foregoing rules pertaining to the pollution of the adjacent streams or tributaries, provided that no parks or other places of resort whatsoever for the use and entertainment of the public shall be established or maintained within 250 feet of the margin of the reservoirs or its tributaries shall be permitted within a distance of five miles from the waterworks intake.

The Secretary presented to the Board for consideration proposed rules and regulations for the sanitary management of barber shops as authorized by Chapter 119, Section 16, Public Laws, Session of 1929, and upon motion of Dr. Wright, seconded by Dr. Orr, the following rules and regulations were unanimously adopted:

RULES GOVERNING THE SANITARY MANAGEMENT OF BARBER SHOPS

1. Barber shops shall be located in buildings or rooms of such construction that the same may be easily cleaned.

2. Barber shops shall be well ventilated and lighted, and equipped with suitable plumbing.

3. The floors, walls, furniture and other fixtures of barber shops shall at all times be kept clean; all cuspidors shall be thoroughly cleaned and washed at least once a day.

4. Running hot and cold water, located at a convenient point within the shop shall be provided.

5. All equipment used in connection with serving a patron, shall be maintained in a clean and sanitary manner. Instruments or appliances of any kind which come in contact with the body of a patron shall be, after each separate use, sterlized by immersing in a solution of 50% alcohol, 5% carbolic acid, 20% formaldehyde, 10% lysol, for five minutes or by boiling at least ten minutes after each separate use.

6. Single service towels shall be provided and every person serving as a barber shall use a separate clean towel for each patron. All towels shall be laundered after each use before being again used in the service of another person.

7. No person serving as a barber shall permit any person to use the head rest of any barber's chair under his control unless the head rest is covered with a towel that has been washed since last being used or by a clean, new paper.

8. Hair brushes and combs must at all times be kept clean.

9. All shaving cups and lathering brushes must be thoroughly cleaned with hot water before using on any customer.

10. No person serving as a barber shall undertake to treat any disease of the skin.

11. No person serving as a barber shall, to stop the flow of blood, use alum or other material unless the same be used as a powder applied with a clean towel or in liquid form.

12. No person serving as a barber shall shave any person when the surface to be shaved is inflamed or broken out or contains pus, unless such person is provided with a cup, shaving brush and razor, for his individual use.

13. Every person serving as a barber shall thoroughly cleanse his or her hands immediately before serving each customer.

14. All persons employed in a barber shop shall be clean, both as to person and dress.

15. Every person serving as a barber shall hold and display upon request by an inspector or agent of the State Board of Health a certificate of physical examination during the current calendar year, by a licensed physician of North Carolina. Such certificate shall specify whether the holder is free from a communicable disease or from a venereal or other disease in infectious stage.

16. No owner or manager of a barber shop shall permit any person suffering from a communicable disease or from any venereal disease in a communicable form to serve as a barber in said shop or who does not have a health certificate in accordance with Rule 15 certifying that such person is free from any communicable disease or from a venereal disease or other disease in communicable form.

The Secretary presented to the Board for consideration proposed revision of rules and regulations governing the management of scarlet fever as authorized by Consolidated Statutes, Chapter 118, Article 9, Section 7154, and upon motion of Dr. Wright, seconded by Dr. Anderson, rules and regulations heretofore adopted for the management of scarlet fever were repealed and in lieu thereof the following were unanimously adopted:

RULES AND REGULATIONS GOVERNING THE MANAGEMENT OF SCARLET FEVER

Rules Governing Parents

Rule 1. Each parent, guardian, householder and adult shall immediately and securely fasten in the most conspicuous place near the main entrance of his or her home (when living in a hotel, apartment house, or rented room, upon the door leading to their aparment, or room) such placard as sent by the quarantine officer to him or her; and in case such placard is removed in any way whatsoever the householder, parent, or guardian shall immediately notify the quarantine officer, so that the placard can be replaced. This placard must remain as specified for a period of twenty-eight days from the onset of the disease or until written permission is given by the quarantine officer.

Rule 2. Each parent, guardian, householder and adult shall report to the quarantine officer, giving the name, age, color, and sex of every person in his or her home that has scarlet fever, date of onset, and name of school district, within twenty-four hours after he or she has evidence to believe that the child has scarlet fever, as specified in Section 7152, Consolidated Statutes.

Rule 3. No parent, guardian, householder or adult should permit any child or minor living in his house to attend any public or private school, Sunday school, church meeting, theater, party, picnic, or other public assemblage, go near a public park, or to appear upon a public street, while the house is placarded.

Rule 4. No parent, guardian, householder or adult shall permit any child or minor who has been exposed to scarlet fever to attend any public or private school, Sunday school, or other church meeting, theater, party, picnic, or other public assemblage, or to go near a public park, or upon a public street, within seven days from the time of exposure.

Rule 5. Each parent, guardian, householder and adult shall notify in some way the teacher, if a person living in his or her house has scarlet fever.

Rule 6. Each parent, guardian, householder and adult must, upon request by the quarantine officer, inform him of the name and address of any person who has been exposed to scarlet fever in his or her home.

Rule 7. No parent, guardian, householder or adult shall either sell, give away, or receive in containers, that are to be returned, any milk, butter, or other dairy product while the house is placarded, until a personal interview has been had with the quarantine officer, so as to learn how to prevent contaminating these products in order not to spread the disease.

Rule 8. No person, adult or minor, who has scarlet fever, or has been exposed to scarlet fever, shall attend any public or private school, Sunday school, church meeting, theater, party, picnic or other public assemblage, go near a public park, or appear upon a public street until permitted to do so by the quarantine officer.

Rule 9. Each parent, guardian, householder and adult shall observe, during and at the termination of the disease, the following precautions adopted by the North Carolina State Board of Health for the prevention of the spread of scarlet fever:

(a) Those having scarlet fever must be kept in rooms to themselves as well as housing conditions will permit.

(b) As few people as possible are to be permitted to act as a nurse, and in no instance a person whose duty will make it necessary for that party to leave the premises prior to the termination of the quarantine;

and those nursing the sick must be encouraged to wash their hands after each assistance.

(c) The room must be ventilated and the sun permitted to enter as instructed by the doctor.

(d) As far as possible, the discharges from the nose and throat should be properly disposed of by supplying the sick with paper napkins, rags, etc., to cover up the cough and sneeze, and such rags, etc., must be burned after use.

(e) The feeding utensils and drinking vessels handled by a person who has scarlet fever must not be used by any other person until they have been thoroughly boiled.

(f) All washable material, such as sheets, pillow cases, towels, etc., which have been used by or come in direct contact with the person having scarlet fever, should be either boiled on the premises or soaked for three hours in a solution of carbolic acid in the proportion of a tablespoonful to a pint of water, or a solution of that proportion or a preparation equivalent in antiseptic power.

TO PREVENT THE INFECTION OF THE ROOM AND HOUSE DURING THE DISEASE IS FAR BETTER THAN TO ATTEMPT TO DISINFECT THE ROOM AND HOUSE AFTER THE DISEASE. ALL THE TERMINAL FUMIGATION IN THE WORLD WILL NOT ATONE FOR CARELESSNESS AND UNCLEANLINESS IN THE CARE OF THE SICK.

It is good to give a room a thorough cleaning after any case of sickness. Such material as can be boiled should be so treated; otherwise, expose it to the sunshine for several days. The room should be thoroughly aired and sunned. The floors and woodwork can be scrubbed with hot water and soap. These measures are safer and more economical than fumigation.

Rules Governing Teachers

Rule 1. When a teacher has reason to suspect that any person residing in his or her school district has scarlet fever, or when any child is absent from school because of what may be scarlet fever, he or she must make a written report to the quarantine officer within twenty-four hours, giving the name of the person or child, the name and address of the householder with whom the person or child lives, and the name of his or her school district.

Rule 2. No teacher shall reside in a home where there is a person sick with scarlet fever, and conduct or attend a public or private school, unless housing conditions are such that the patient and attendants can be and are completely isolated at all times.

Rule 3. The principal of each school must keep a copy of the posters and literature which point out the signs and symptoms of scarlet fever as furnished to him or her upon application to the North Carolina State Board of Health, Bureau of Epidemiology, Raleigh, N. C.

Rule 4. When the principal of the school receives official notice from the quarantine officer that scarlet fever exists in a family residing in the school district, he or she is required to strictly obey and enforce the following rules:

(a) He or she must exclude from his or her school each child living in the house, apartment, or room where scarlet fever exists.

(b) He or she must have observed daily the children in his or her school for signs and symptoms of the disease, and is ordered and empowered to exclude immediately from school any pupil showing indications of scarlet fever for seven days or until the symptoms have subsided, or a satisfactory certificate is presented, signed by a physician or the health officer.

(c) He or she must report, within twenty-four hours, to the quarantine officer the name of any child excluded, and the name and address of the parent, householder, or guardian with whom the child resides.

(d) He or she must have called frequently to the attention of the children the signs, symptoms, and dangers of scarlet fever, and read aloud before the assembled school such letters, references, and lectures, and send to the homes by the children such literature as he or she may receive from the quarantine officer dealing with "Facts About Scarlet Fever."

(e) He or she, within twenty-four hours after receiving notification from the quarantine officer of the presence of scarlet fever in his or her school district, must notify, by letter or otherwise, the superintendent of the Sunday school, church officials, or some responsible person (when the address of such person is known), and have announced at any public meeting which is being held the prevalence of scarlet fever in his or her school district, its signs, symptoms, dangers, and precautions to be taken, so as to prevent its spread.

(f) He or she must not permit the use of the common dipper, drinking cup, or open bucket, when scarlet fever is present in his or her school.

Rule 5. The principal of each school must certify by letter to the quarantine officer who has jurisdiction over the district that such duties as set forth in these regulations have been performed, whenever notice is received from him of the prevalence of scarlet fever in his or her school district.

Upon motion of Dr. Stanton, seconded by Dr. McDaniel, the following resolution was unanimously adopted:

"Under authority conferred by Consolidated Statutes, Chapter 118, Article 9, Section 7151, pellagra is hereby declared to be a preventable disease, and it shall be the duty of every physician to notify the county quarantine officer of the name and address of any person about whom such physician is consulted professionally and whom he has reason to suspect or believe is afflicted with pellagra; such report to be made on forms supplied by the State Board of Health."

Upon motion of Dr. Orr, seconded by Dr. Thompson, the Secretary was directed to send a night letter to Dr. W. S. Rankin, of Charlotte, expressing the sympathy of the Board to him in his bereavement suffered by the death of his father.

Upon motion of Dr. Thompson the Board recessed to 11 A. M., April 16th.

ANNUAL MEETING OF BOARD—*Continued*

April 16, 1929

The Board met at 11:30 A. M. in the King Cotton Hotel with the President, Dr. A. J. Crowell, presiding and the following members present: Dr. Thompson, Dr. Stanton, Dr. Anderson, Dr. McDaniel, Dr. Orr, Dr. Tucker, and Mr. Stowe. In explanation of Dr. Wright's absence the President explained that the Nominating Committee of the Medical Society was in session and that Dr. Wright was attending it.

The minutes of the last regular meeting of the Board, and of subsequent called meetings and meetings of the Executive Committee were read and approved.

The Secretary read the following from the *Raleigh News and Observer* of April 16, 1929:

"BREACH APPEARS AMONG STATE HEALTH WORKERS

"Foreshadows of a controversy at the meeting of the State Medical Society, which began in Greensboro last night, and the hint of a conflict between Dr. Charles O'H. Laughinghouse, State Health Officer, and Dr. C. A. Shore, director of the State Laboratory of Hygiene, developed yesterday when the Wake County Medical Society presented Governor Gardner with a resolution, endorsing Dr. Shore and condemning the removal of the water examination work from the laboratory to the Bureau of Engineering and Sanitation, headed by H. E. Miller.

"When called in Greensboro last night, Dr. Laughinghouse said that the change was made after a conference between Dr. Shore, Mr. Miller and himself and was made with the approval of all three. But when Dr. Shore, also in Greensboro, was reached by telephone, he said:

" 'This puts me in a delicate position and I can make no comment.' When told that Dr. Laughinghouse said the change was made with his approval, he again said, 'I'm sorry, but I can make no comment on that, either.'

"Dr. Laughinghouse said that there was no conflict between Dr. Shore and himself and expressed a high opinion of the director of the laboratory.

"The past legislature, for the first time, made the appropriation for the laboratory as a part of the appropriation for the State Board of Health. In the past the laboratory has been under the Board but the appropriation was made separately. The laboratory did all the bacteriological examination of water for the State and for municipalities. By the latter work, it augmented its income by about $5,000 a year.

"When asked why the water examination was removed to Mr. Miller's department, Dr. Laughinghouse said that the engineering bureau had a number of inspectors who were in close touch with water works and that the examination was more akin to the duties of this division than with the duties of the laboratory. The engineering division also has charge of the stream pollution work. 'The change makes for more economy and efficiency,' said the State Health Officer.

" 'The State Laboratory of Hygiene is a part of the State Board of Health like the Bureau of Vital Statistics or the Bureau of Epidemiology,' said Dr. Laughinghouse. 'It is distinctly not a separate organization.'

"The resolution presented to Governor Gardner yesterday follows:

" 'Be it resolved by the Wake County Medical Society, that we endorse Dr. C. A. Shore and the policies of the State Laboratory of Hygiene as carried out by him.

" 'Be it further resolved that we condemn the removal of the bacteriological examination of water supplies of the State from his department and its transfer to the supervision of an engineer.

" 'Be it further resolved that these transactions be brought before the Governor of the State and the State Medical Society.

" 'We ask that the work and services of the State Laboratory of Hygiene, so ably directed by Dr. C. A. Shore, be allowed to expand rather than to be limited.

" 'Passed unanimously by the Wake County Medical Society.'

"The following committee was appointed to present these resolutions to the Governor and the State Medical Society for their endorsement: Drs. H. B. Haywood, Z. M. Caviness, E. D. Caviness, A. S. Root and C. O. Abernathy.

"Governor Gardner said last night that he knew of no action that he could or should take in the matter.

"At the present session of the State Medical Society four members of the State Board of Health are to be elected. When asked if he believed that the resolution would have anything to do with the election of these men, Dr. Laughinghouse said he did not. Neither Dr. Laughinghouse or Dr. Shore knew about the resolution or had any intimation that such a thing was being considered by Wake County doctors, they said last night."

The Secretary then stated that the question of where the water analysis work should be done had been under consideration for quite some time; that about two years ago an agreement had been entered into between the State Department of Conservation and Development and the Board under the terms of which the Board of Health had obligated itself to make certain chemical analysis of water to determine sewage pollution and industrial waste content; that Dr. Shore had stated that the Laboratory of Hygiene was not equipped either physically or in personnel to undertake such work, and further that the laboratory was a bacteriological and diagnostic laboratory and the distinction of such work as against chemical work should be maintained; that as a result laboratory equipment was set up in the Bureau of Sanitary Engineering and Inspection to perform this work; that from time to time in the supervision of the operation of public water supplies the Bureau of Sanitary Engineering and Inspection had found it necessary to have made more frequent bacteriological analyses than the routine analysis of monthly sample required by law, and because of the inability of the Laboratory to take on such added work had developed a system of field analyses made by the members of the engineering staff on the spot; that this divergence had continued to progress, and that from time to time both Dr. Shore of the Laboratory and Mr. Miller of the Bureau of Sanitary Engineering and Inspection had been consulted and had individually and jointly agreed that eventually it would be wise to consolidate the entire water analysis work of the two divisions and have same done by the Bureau of Sanitary Engineering and Inspection; that early in January at a conference with Dr. Shore and Mr. Miller the matter was discussed and the proposition advanced that the time had arrived for such consolidation, and that both Dr. Shore and Mr. Miller agreed and approved such proposed action; that following this conference memorandum was submitted to the Budget Bureau and under date of January 21, 1929, the Budget Bureau directed that water analysis work heretofore done by the laboratory be transferred to the Bureau of Sanitary Engineering and Inspection with the consequent necessary budgetary readjustments; that because of necessity of preparing to undertake the new duties the Bureau of Sanitary Engineering and Inspection was given until April 1st to begin the work, and that as of that date the transfer had been made, the personnel heretofore engaged by the Laboratory in this particular work being transferred with the exception of Mr. Kellogg.

President Crowell stated that the Secretary had consulted him regarding the proposed change, that he had pointed out that the matter was one of administrative detail subject to the authority and discretion of the Secretary, and that he had therefore approved it.

Dr. Orr moved that, inasmuch as the Bureau of Sanitary Engineering and Inspection is headed by an experienced sanitary engineer and contains personnel specially trained for the purpose, the transfer of water analysis work from the Laboratory of Hygiene to the Bureau of Sanitary Engineering and Inspection be approved. The motion was seconded by Dr. McDaniel and upon vote was unanimously carried.

The Secretary announced the replacement of Dr. J. C. Johnson as Director of Oral Hygiene with Dr. Ernest A. Branch, effective January 1, 1929. The Secretary stated that the services of Dr. Branch are proving highly satisfactory and that his work is bringing to the Board a large number of commendatory letters. Dr. Thompson told of being present at a district dental society meeting held at Jacksonville and of the splendid impression which Dr. Branch had made in an address to the assembled dentists.

The Secretary presented to the Board for consideration certain proposed rules and regulations governing the notification, prevention and control of communicable diseases in North Carolina as authorized by Consolidated Statutes, Article 9, Section 7154, and upon motion of Dr. McDaniel, seconded by Dr. Tucker, the following were adopted:

LEGISLATION PERTAINING TO THE CONTROL OF COMMUNICABLE DISEASES

Authority for State Board of Health to Make and Publish Rules and Regulations Governing Communicable Diseases

Article 9, Section 7154. RULES OF STATE BOARD OF HEALTH: *Rules of Local Authorities.* The North Carolina State Board of Health shall adopt what in their judgment seems to be the necessary rules and regulations governing the management, supervision, or control of the diseases coming within the meaning of this article, and shall cause the rules and regulations adopted to be published in the North Carolina State Board of Health Bulletin and to be supplied in suitable quantities to all concerned with the execution of this article, and the North Carolina State Board of Health shall revise such rules and regulations from time to time to adjust their requirements to new discoveries and improved methods for dealing with the sources and modes of infection of the diseases specified. The rules and regulations so adopted shall be regarded as the minimum requirements, and the authorities of any county, town, or city may adopt such additional rules and regulations for the control of the diseases mentioned in this article, and pay such additional fees and salaries as in their judgment seem necessary.

Penalty for Violating Rules and Regulations Adopted by State Board of Health

Article 9, Section 7155. VIOLATION OF ARTICLE OR RULES MISDEMEANOR. Any person wilfully violating any of the provisions of this article, and any person violating any of the rules and regulations adopted by the North Carolina State Board of Health, as provided in the preceding section, shall, in the absence of specific provisions in other sections of this article, be guilty of a misdemeanor and fined not exceeding fifty dollars, or imprisoned not more than thirty days, at the discretion of the court. In case the offender be stricken with the disease for which he is quarantinable, he shall be subject to the penalty on recovery, unless in the opinion of the secretary of the North Carolina State Board of Health the penalty should be omitted.

Authority for Requiring the Reporting of Infectious Diseases by Physicians, Householders and Parents

Article 9, Section 7151. PHYSICIANS TO REPORT INFECTIOUS DISEASES. It shall be the duty of every physician to notify the county quarantine officer of the name, address, including the name of the school district, of any person living or residing, permanently or temporarily, in the county about whom such physician is consulted professionally and whom he has reason to suspect of being afflicted with whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, typhus fever, Asiatic cholera, bubonic plague, yellow fever, or other diseases declared by the North Carolina State Board of Health to be preventable, within twenty-four hours after obtaining reasonable evidence for believing that such person is so afflicted. If the afflicted person is a minor, the physician consulted professionally about him shall notify the county quarantine officer of the name and address of the parent or guardian of the minor in addition to the name, address, and school district of the minor himself. (Consolidated Statutes.)

ARTICLE 9, SECTION 7152. PARENTS AND HOUSEHOLDERS TO REPORT. It shall be the duty of every parent, guardian, or householder in the order named to notify the county quarantine officer of the name, address, including the name of the school district, of any person in their family or household about whom no physician has been consulted but whom they have reason to suspect of being afflicted with whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, typhus fever, Asiatic cholera, bubonic plague, yellow fever or other disease declared by the North Carolina State Board of Health to be preventable.

County Quarantine Officer to Gather Morbidity Reports

ARTICLE 9, SECTION 7153 QUARANTINE OFFICER TO REPORT CASES TO STATE BOARD OF HEALTH. It shall be the duty of the county quarantine officer to report all cases of whooping cough, measles, diphtheria, scarlet fever, smallpox, infantile paralysis, typhoid fever, Asiatic cholera, typhus fever, bubonic plague, yellow fever, or other disease declared by the North Carolina State Board of Health to be preventable, reported to him by physicians and parents, guardians, or householders, within twenty-four hours of the receipt of such report to the Secretary of the North Carolina State Board of Health at Raleigh, and to make this report on forms supplied him by the secretary and in accordance with the rules and regulations adopted by the North Carolina State Board of Health.

Authority for County Boards of Health to Make Additional Rules and Regulations

ARTICLE 9, SECTION 7065. DUTIES OF COUNTY BOARD OF HEALTH; MEETINGS; EXPENSES. The county board of health shall have the immediate care and responsibility of the health interests of their county. They shall meet annually in the county town, and three members of the board are authorized to call a meeting of the board whenever in their opinion the public health interest of the county requires it. They shall make such rules and regulations, pay such fees and salaries, and impose such penalties as in their judgment may be necessary to protect and advance the public health. All expenditures shall be approved by the board of county commissioners before being paid.

Penalty for Violating Rules and Regulations Adopted by County Boards of Health

ARTICLE 9, SECTION 7066. VIOLATION OF RULES OF COUNTY BOARD MISDEMEANOR. If any person shall violate the rules and regulations made by the county board of health, he shall be guilty of a misdemeanor, and fined not exceeding fifty dollars or imprisoned not exceeding thirty days.

Authority for Restricting Transportation of Persons Dying of Infectious Diseases

ARTICLE 9, SECTION 7161. TRANSPORTATION OF BODIES OF PERSONS DYING OF INFECTIOUS DISEASES. No railroad corporation or other common carrier of persons shall convey or cause to be conveyed through or from any city, town, or county in this State the remains of any person who has died of smallpox, measles, scarlet fever, diphtheria, typhus fever, yellow fever, or cholera until such body has been disinfected and encased in such manner as shall be directed by the State Board of Health, so as to preclude any danger of communicating the disease to others by its transportation; and no local registrar, clerk, or health officer or any other person shall give a permit for the removal of such body until he has received from the local board of health or other proper health authorities of the city, town, or county where the death occurred a certificate stating the cause of death and that the said body has been prepared in the manner set forth in this section; which certificate shall be delivered in duplicate to the agent or person who receives the body, and one copy shall be pasted on the box containing the corpse; said certificate shall be furnished in blank by the transportation company when no local board of health exists.

RULES AND REGULATIONS OF THE STATE BOARD OF HEALTH GOVERNING THE NOTIFICATION, PREVENTION AND CONTROL OF COMMUNICABLE DISEASES IN NORTH CAROLINA:

Whereas, under the provision of the above statutes of the State of North Carolina, the State Board of Health shall take cognizance of the health interest of the people of the State, shall make sanitary investigations and inquiries in respect to the people, employing experts when necessary; shall investigate the cause of diseases dangerous to the public health, especially epidemics, the sources of mortality, the effect of location, employments, and conditions upon the public health; shall gather such information upon these matters for distribution among the people with the especial purpose of informing them about preventable diseases; shall be the medical advisors of the State, and are herein especially provided and shall advise the Government in regard to the location, sanitary construction and management of all state institutions, and shall direct the attention of the State to such sanitary matters as in their judgment affects the industries, prosperity, health and lives of the people of the State.

Now, Therefore, the following regulations are hereby adopted as necessary and proper for the preservation and improvement of the public health and the prevention of the spread of communicable diseases:

Definition of Terms

Regulation 1. For the purpose of these regulations the words and terms used herein are defined as follows:

a. *Disinfection.* Disinfection is the process of destroying by physical or chemical means the vitality of those minute forms of life which cause disease.

(1). *Concurrent* disinfection signifies the immediate disinfection and disposal of all infected material during the course of illness and implies the prompt disinfection or destruction of all infected discharges and of all articles soiled by them. Futhermore, it includes the purification and cleanliness of the immediate environment of the patient so as to check the spread of infection.

(2). *Terminal* disinfection signifies the measures taken to destroy and purify infectious material after the recovery or removal of the patient or the termination of isolation or quarantine. Terminal fumigation finds its chief usefulness in fighting the insect-borne diseases.

b. *Immune.* An immune person is one who is insusceptible to the influence of a particular infectious agent. Insusceptibility to infections may be due to recovery from an attack of the disease or successful vaccination or serum treatment.

c. *Incubation Period.* The incubation period of a disease is the time that elapses between the introduction of the infectious material into the body and the manifestation of clinical signs or symptoms of the disease.

d. *Carriers.* A carrier is one who harbors in his body the infectious agent of a communicable disease, but who is apparently in good health.

e. *Contact.* A contact is a person or animal who has been sufficiently near to an infected person, animal or thing to make possible the transmission of the infectious agent to him.

f. *Cultures.* Cultures are growths of micro organisms in or upon artificial media; such cultures being obtained from secretions or excretions for the purpose of determining disease-producing organisms.

g. *Infectious Agent.* An infectious agent is a micro organism capable, under favorable conditions, of causing a communicable disease.

h. *Period of Communicability.* The period of communicability of a disease is the time during which the infectious agent may be transmitted to others.

i. *Susceptible.* A susceptible person is one who is not known to be immune to a communicable disease.

j. *Quarantine.* The term quarantine refers to the detention of persons or animals that have been exposed to communicable disease for the period of incubation of the disease; the object being to destroy and isolate infection.

k. *Placards.* The term placard means an official notice with the name of the disease thereon, which is posted in accordance with law as a warning of the presence of a communicable disease.

l. *Isolation.* The term isolation means the separating of a person suffering with a communicable disease, or who is a carrier of the infectious agent of a communicable disease, in such a manner as to prevent, if possible, the conveyance of the infectious agent to other susceptible individuals.

m. *Local Health Officer.* The term local health officer means the health authority having jurisdiction over a given area or unit and includes city and county boards of health and any person or persons legally authorized to act for the health officer.

Notifiable Diseases

Regulation 2. The following named diseases are declared to be contagious or infectious, or otherwise dangerous to the public health, and should be notified or made known in accordance with the provisions of the statutes and of these regulations:

CLASS I

Rabies
Measles
Anthrax
Pellagra
Smallpox
Trachoma
Diphtheria
Tularaemia
Chicken Pox
Typhus Fever
Yellow Fever
Para-typhoid
Typhoid Fever
Scarlet Fever
German Measles
Whooping Cough
Septic Sore Throat
Infantile Paralysis
Ophthalmia Neonatorum
Cerebro-Spinal Meningitis
Influenza and Pneumonia
(all forms)

CLASS II

Venereal Diseases:

Syphilis
Gonorrhea
Chancroid

Tuberculosis reportable to State Sanatorium, Sanatorium, N. C.

Physicians Must Notify Cases

Regulation 3. Whenever any physician examines or treats any person known or suspected by him to be suffering from or infected with any of the diseases declared to be notifiable by these regulations, he shall notify such diseases as follows:

a. For the diseases listed in Class I, regulation 2, notification shall be made to the local quarantine or health officer within 24 hours after obtaining reasonable evidence that such person is so afflicted, on forms prepared by the State Board of Health. If the afflicted person is a minor, the physician consulted professionally shall notify the quarantine or health officer of the name and address of the parent or guardian of the minor in addition to the name, address and school district of the minor himself.

b. For the diseases listed in Class II, regulation 2, notification shall be made within 48 hours after diagnosis on special blanks prepared by and obtainable from the North Carolina State Board of Health. The reports shall be made direct to the State Board of Health, unless reports made on approved forms to county or municipal health authorities in accordance with local ordinances are promptly forwarded to the State Board of Health. In this instance, duplicate reports will not be required. When a legally qualified physician is willing to assume such responsibility for a venereal disease patient as will protect others from infection on that patient's part, such physician shall have the privilege of reporting such case by number without disclosure of name. Any physician who elects to report a case of venereal disease by number, shall keep in his office a record of the case under the same number. All others reporting venereal diseases must give the name and address of the patient.

Health Officers Report to State Board of Health

Regulation 4. a. All local health officers and quarantine officers who are assistant collaborating epidemiologists shall forward within 24 hours all reports of reportable diseases received by them from physicians, parents, guardians, householders and teachers on forms supplied by the State Board of Health in accordance with these rules and regulations.

b. Whenever any of the diseases named in Class I, regulation 2, become unduly prevalent or epidemic, special reports by telegram or telephone shall be made by the local quarantine or health officer to the State Board of Health of the facts and circumstances surrounding such diseases.

c. The local quarantine or health officer shall report all typhoid fever carriers to the State Board of Health as soon as discovered, giving the name, age, sex, color and occupation of such carrier and a further report shall be made whenever the address of such carrier is changed.

Other Persons Must Report Diseases Listed in Classes I and II, Regulation 2

Regulation 5. Whenever no physician is in attendance, it shall be the duty of the following named persons to notify immediately the local quarantine or health officer the existence of any disease coming under their observation declared by the North Carolina State Board of Health to be reportable.

a. When a superintendent or teacher of any private or public school has reason to suspect that any disease herein declared to be reportable exists in his or her school district, he or she shall make a report within 24 hours to the local quarantine or health officer, giving the name of the person or child, name and address of the householder with whom the person or child lives and the name of his or her school district, and shall prohibit return of person or child to school until a permit is granted by the health officer or attending physician.

b. Parents, guardians, and heads of households must notify the health officer or quarantine officer in the absence of an attending physician of all cases occurring in their household.

c. Nurses must notify all cases coming under their observation in the absence of attending physicians.

d. Owners or managers of dairies and food establishments must notify immediately in the absence of an attending physician the quarantine or health officer of all cases of reportable diseases among their employees.

e. Officers of all public and private institutions and jails must notify all cases at such institutions and jails.

f. Keepers of hotels and lodging houses must notify all cases at such hotels and lodging houses.

Duties of Health Officers and Quarantine Officers With Reference to Communicable Diseases

Regulation 6. The health officer shall have the immediate care and responsibility of the health interest of his county. He shall devote his entire time to the county public health work and shall perform the duties of county physician, quarantine officer, and whenever notified or has reason to believe that there is a case of notifiable disease within his county or municipality, he shall:

a. Either in person or through a duly authorized agent, immediately inquire into the circumstances surrounding the occurrence of such diseases to determine, if possible, the contacts and source of infection.

b. Establish and maintain quarantine or isolation and such other methods of control as stated in these regulations.

c. When notified that a communicable disease exists in any pupil or teacher at school, immediately visit such school, advise the school authorities, consult with them regarding the source or sources of the infection, mode or modes of transmission, outline and institute necessary methods for control.

d. Supply the school authorities and householder with such literature and information as may be helpful in preventing the spread of said disease.

e. Give such publicity to the existence of said disease as may be necessary to aid in curtailing or preventing its spread. He shall, through the county press, public addresses, and by every other available means, endeavor to educate the people of his county to set a higher value on health and ways and means looking to the prevention of communicable diseases and to adopt such public and private measures as will tend to a greater conservation of life.

Duties of Attending Physicians With Reference to Communicable Diseases

Regulation 7. Immediately upon making a diagnosis of a communicable disease, it shall be the duty of the attending physician not only to report said disease but to order such isolation, quarantine and disinfection as may be necessary or as is provided for in these regulations. It shall be the duty of the person so instructed to comply with such instructions until otherwise notified by the local health officer or quarantine officer.

Duties of Hospital Authorities With Reference to Communicable Diseases

Regulation 8. It shall be the duty of superintendents of hospitals or other persons in charge to immediately notify the local quarantine or health officer as soon as any disease declared by these regulations to be notifiable is admitted, treated or examined in such hospital or sanatorium.

a. To enforce the provisions of these regulations relating to isolation or observation of cases and carriers and quarantine of contacts of communicable diseases.

b. Prohibit the removal of any case of communicable disease for which placarding is required except upon approval of the health officer.

Observance of Isolation and Quarantine

Regulation 9. Every person who is infected or who is a carrier or who has come in contact either directly or indirectly with a communicable disease, shall strictly observe and comply with all orders, isolations and restrictions given or imposed by the attending physician, local health officer or State Board of Health pursuant to these regulations.

a. No person other than the attending physician or attendants should be allowed to enter the room of a person suffering with a communicable disease.

b. No person other than the local health officer or quarantine officer or their duly authorized agent, shall remove or deface any placard or quarantine notice.

Incubation Periods With Reference to Communicable Diseases

Regulation 10. The accepted incubation period of certain communicable diseases are hereby declared to be as follows, and shall be observed by physicians and health officers in controlling cases and contacts, except where otherwise specified:

Chicken Pox	2 to 3 weeks
Diphtheria	2 to 7 days
German Measles	14 to 21 days
Smallpox	8 to 16 days
Typhoid Fever	7 to 23 days
Whooping Cough	5 to 10 days
Scarlet Fever	2 to 7 days
Para-typhoid	4 to 21 days
Measles	6 to 14 days
Pneumonia	2 to 5 days
Septic Sore Throat	1 to 3 days

Minimum Periods of Communicability Declared

Regulation 11. The minimum periods of communicability for clinical cases of the diseases named in these regulations are hereby declared to extend from the onset of the earliest symptoms to the time specified for each disease and shall be observed by physicians and health officers in controlling same:

Chicken Pox: Until disappearance of primary scabs.

Diphtheria: Until two negative nose and throat cultures have been obtained 24 hours apart and 12 days after onset; or in the absence of laboratory facilities, quarantine for 16 days.

German Measles: Until 7 days from onset.

Gonorrhea: Until discharges show the absence of the gonococci.

Measles: From catarrhal symptoms until 7 days after eruption appears.

Pneumonia: Until 10 days of normal temperature.

Scarlet Fever: From earliest symptoms to 3 weeks after eruption and all abnormal discharges have ceased.

Smallpox: Until 16 days after eruption appears and until all primary crusts are off and all lesions healed.

Syphilis: As provided by statute and as long as lesions of skin and mucous membrane exists.

Trachoma: During the existence of active lesions.

Tuberculosis: As long as tubercular bacilli are evidenced in sputum.

Typhoid and Para-typhoid: From the prodromal symptoms until the temperature is normal for a week and two successive examinations of urine and feces taken at least a month apart show the absence of the infecting organisms.

Whooping Cough: From onset until 3 weeks after development of characteristic whoop.

Method of Isolation of Certain Communicable Diseases

Regulation 12. When a health officer receives a report of a case of any disease listed in these regulations, he shall institute and maintain control in accordance with the regulations hereinafter stated.

a. When the disease is:

Yellow Fever
Typhus Fever
Tularaemia
Anthrax

the premises should be placarded, the case isolated, contact between the patient and all others except the necessary attendants prohibited. Special information should be requested from the State Board of Health by telegraph or telephone.

b. When the disease is:

Cerebro-Spinal Meningitis
Diphtheria
German Measles
Infantile Paralysis
Measles
Scarlet Fever
Septic Sore Throat (epidemic)
Whooping Cough

the house or premises where such diseases exist shall be placarded and the attendants quarantined therein. Contact between the patient and all except necessary attendants shall be prohibited. Cases shall be excluded from school and prohibited from associating with non-immunes.

c. When the disease is:

Typhoid Fever
Para-typhoid

(1) The house or premises on which cases exist shall be placarded.

(2) The patient or patients afflicted with the disease shall be isolated as far as practicable until recovery, and contact between patient or patients with any but necessary attendants discouraged.

(3) The sale of milk, milk products, raw vegetables, etc., from the premises shall be prohibited.

(4) Patients on recovery shall not engage in the manufacture, preparation or sale of milk products for public consumption, or engage in the handling of foods. Provided however, that persons other than the ones having the disease on such premises shall take up a residence elsewhere and fail to develop symptoms of typhoid fever within three weeks from date of last contact, they may resume occupations which involve the

handling of food. The health officer or quarantine officer shall investigate each case carefully for the purpose of determining the extent of exposure and contact.

(5) The health officer or quarantine officer shall make a sanitary survey of all premises on which or in which cases of typhoid or para-typhoid exist or originate and if he should find any condition insanitary or any conditions contrary to other public health regulations, he shall immediately order by written notice the correction of such conditions by the person or persons responsible for their existence and shall, if necessary, enforce such order by filing of complaint and prosecution.

(6) Health officers and quarantine officers shall make an epidemiological investigation of all cases of typhoid and para-typhoid upon forms supplied by the State Board of Health for this purpose, forwarding a copy of their investigations to the State Board of Health, Bureau of Epidemiology.

(7) In case the domestic water supply is shown to be a positive or probable source of infection, or when a public dairy is thought to be the source of infection, the health officer or quarantine officer shall prevent the public use of the water or milk until a thorough and exhaustive investigation is made, and if in the opinion of the health officer or quarantine officer, the sanitary conditions are beyond temporary remedies, he shall condemn such water and milk supplies and prohibit their further use until proven safe.

(8) Concurrent disinfection of all excreta from patients must be rigorously performed. The health officer or quarantine officer shall, after consulting the attending physician, charge the nurse and householder with the responsibility of performance of this disinfection. He shall see that each householder is supplied with printed instructions regarding the prevention of typhoid and para-typhoid distributed by the State Board of Health.

(9) Terminal disinfection of room and contents and contaminated articles only is required.

(10) After convalescence the patient shall continue under public health supervision as provided for in regulation 12, that is, until two successive examinations of urine and feces taken at least a month apart show the absence of the infecting organisms.

(11) Wherever the premises are not provided with a safe water supply or with approved sewage disposal or sanitary privy of a type approved by the North Carolina State Board of Health, the health officer or quarantine officer shall notify, in writing, and require the owner of the said premises to provide approved water supply and sewage disposal or sanitary privy for the premises within a reasonable period which shall be designated in the notice issued. In case of insanitary disposal of excreta due to defective or careless maintenance of sewage or sanitary privy facilities, the health officer or quarantine officer shall notify the occupant, in writing, to correct same in accordance with rules of State Board of Health approved for the sanitary maintenance of sewage and sanitary privies within a reasonable period of time which shall be designated in the notice.

d. When the disease is:

Smallpox
Chicken Pox

house or premises shall be placarded, unnecessary contacts between patient and others discouraged. Concurrent disinfection shall be practiced.

e. When the disease is:

Trachoma

(1) No child suffering from trachoma shall be permitted to attend any public, private or parochial school, provided, however, if such child is being regularly treated by a physician surgeon, he may, by a special permit from the local, county or state health officer, be allowed to attend school.

(2) Patients and parents of children having trachoma shall be given special instructions as to means of preventing infection of others and of the danger of the use of common towels, wash basins, etc. Intimate contact by the patient with others must be prohibited and personal hygiene must be insisted upon.

f. When the disease is:

Chancroid
Gonorrhea
Syphilis

the premises shall be placarded and the patient isolated whenever the infected person fails or refuses to undergo treatment and to take other necessary measures to prevent the spread of the disease to others and as provided for in the statutes.

g. When the disease is:

Tuberculosis

(1) Placarding or quarantine is not required except in instances provided for by paragraph "a".

(2) When, in the opinion of the local or county health officer, persons afflicted with tuberculosis endanger the public health by continuously and repeatedly ignoring or violating sanitary rules and restrictions imposed by this regulation, the local or county health officer shall placard the premises so that the public may be warned of the presence of the disease in such persons or households.

(3) All clinically diagnosed cases of tuberculosis shall be regarded as infectious until six consecutive specimens at 48-hour intervals properly collected and examined shall prove negative.

(4) In all known infectious cases of tuberculosis, the health officer shall, through the attending physician, and if no attending physician, then personally, see that patients and their attendants are supplied with sanitary instructions furnished by the State Board of Health for the prevention of infection of others.

(5) All sputum of such cases must be received in a sputum cup, or cloth, or paper napkin that can be burned. All surgical dressings removed from a tuberculosis lesion must be burned.

(6) All hospitals accepting for treatment or care, any person suffering from tuberculosis shall provide separate quarters, rooms or wards for such cases, and such quarters, rooms or wards shall not be used for the treatment or occupancy of persons not afflicted with tuberculosis, until they have undergone thorough cleansing and disinfection.

Where tuberculosis patients are committed to any county or city hospital or county home or farm, provisions for their care must be provided as required for hospitals.

In all such hospitals or other institutions of a public character where persons suffering from tuberculosis are received for care or treatment, separate bedding, towels, dishes and napkinry must be provided for such persons, and must at all times be kept entirely separate from those provided for other patients.

(7) No child, janitor, teacher or other person suffering from tuberculosis in a communicable or infectious form shall attend, frequent or be employed in any public, private, or parochial school. In the event that any person so mentioned is believed to be suffering from pulmonary or laryngeal tuberculosis, the local or county health officer upon receipt of information of such belief shall make prompt and diligent investigation and satisfy himself either by personal examination or by a written certification from a legally qualified physician of the necessity of exclusion of such individual from school, and until such examination or certification shall be made the individual shall be excluded from school.

(8) No person afflicted with infectious tuberculosis shall frequent any establishment or engage in any occupation involving the manufacture, preparation, sale or distribution of food products.

Upon receipt of information or belief that any person so frequenting or so employed is afflicted with tuberculosis, the local or county health officer in whose jurisdiction the case exists, shall require such person to cease such frequenting or employment until by personal examination or by written certification from a legally qualified physician the health officer is satisfied such person is non-infectious.

(9) When any dwelling, or any room or compartment in any hotel, lodging house or apartment house is vacated after having been occupied by any person suffering from tuberculosis, such dwelling, room or compartment shall be thoroughly cleansed and disinfected.

h. When the disease is:

Rabies

(1) When an animal suspected of having rabies has bitten a person, the person so bitten, or their legal representative, shall secure or cause to be secured, such animal alive and without injury if possible. The animal shall be confined in a safe, quiet, roomy and comfortable place, and a report giving full particulars concerning the action taken, sent to the State Health Officer. This report shall include the name of the locality in which the biting occurred, the date the bite was inflicted, the

name, residence and address of the owner of the animal; the full name or names of the person or persons bitten, together with their residence, age, sex, race and information as to the location and extent of the bites; the names, addresses and residences of all owners of animals which have been bitten by the animal in question, together with a list and description of the animals bitten and disposition made of the same. Such supposedly rabid animal must be kept under careful observation for at least 10 days, when, if rabid, clinical evidence of rabies will manifest itself.

(2) The animal should not be killed immediately after biting its victim. It should be held under observation for ten days, and if it remains well during that time, it is absolutely certain that it is not suffering with rabies.

(3) Do not kill the animal by a blow, or a shot in the head, for this often destroys the brain so completely that examination is impossible. When the animal dies or is killed the head and several inches of the neck should be cut off, packed in ice and sawdust and enclosed in a watertight container, and sent to the State Laboratory of Hygiene of the State Board of Health for microscopical examination. Report will be made immediately after the diagnosis is made.

(4) All persons bitten by an animal suspected of having rabies or declared upon microscopical examination by the State Board of Health to have been so infected, should have the Pasteur treatment administered for the prevention of rabies.

i. When the disease is:

Ophthalmia Neonatorum

(1) Should one or both eyes of an infant become inflamed or swollen or reddened, or should any pus or secretion form in the eyes or upon the edge of the lids at any time, it shall be the duty of the midwife, nurse or other person having charge of such infant, to report, immediately, to the local health officer, or to some legally qualified practitioner of medicine in the community in which such case shall occur the fact that such inflammation, swelling or redness or accumulation in the eyes exists.

(2) It shall be the duty of every physician or midwife to instill one or two drops of a one percent solution of silver nitrate into each eye of every infant immediately after birth.

It is recommended that the obstetrical silver nitrate ampules be used, as they are convenient and reliable.

(3) It shall be the duty of said health officer or physician, immediately upon receipt of the report, to notify the parents or person having charge of said infant of the danger to the eyes of said infant and by reason of any neglect of proper treatment, he shall give directions to others for the proper treatment thereof.

Regulation 13. Provided, that when a health officer finds the methods designated in these regulations are ineffective in the control of any individual cases of communicable disease, he may receive authorization from the county board of health in accordance with Chapter 7065, Consolidated Statutes, to employ such additional restrictions as are proper for the protection of the public health.

Methods of Isolation of Carriers

Regulation 14. a. Carriers of the infectious agent of
Typhoid Fever
Para-typhoid

1. The health officer or quarantine officer shall instruct all such carriers fully as to these regulations and as to the precautions to be taken in order not to infect others.

2. Shall not engage in any occupation requiring the handling of milk or food or drink intended for consumption by others.

3. The State Board of Health shall be notified when carriers are discovered, giving the name, age, sex, color, occupation and address of each.

4. The local health officer or quarantine officer should visit all known carriers at least once quarterly in order to determine if these regulations are carried out.

5. A carrier shall not change his or her address without notifying the health officer or quarantine officer.

6. The State Board of Health shall be notified immediately in case said carrier changes his or her address.

7. No carrier shall be released from under public health supervision until the accepted methods of examination indicate that the carrier state no longer exists.

b. Carriers of the infectious agent of
Diphtheria.

shall be isolated until two negative cultures taken at least 24 hours apart are secured or until the health officer or quarantine officer have satisfied themselves by proper examinations that the infection is nonvirulent.

Duties of Physician and Health Officer Regarding Concurrent Disinfection

Regulation 15. It shall be the duty of all attending physicians and health officers to give detail instructions to nurses, householders and others in attendance on a case of communicable disease in regard to proper disinfection and disposal of all discharges from the patient and all articles contaminated either directly or indirectly by the patient, and it shall be the duty of those in attendance to faithfully carry out such disinfection throughout the period of communicability of the disease.

Regulation 16. It shall be the duty of the local health officer or quarantine officer just prior to the release of a case of communicable disease to institute such terminal disinfection as in his opinion may be necessary in order to lessen the likelihood of the disease spreading. In no case shall terminal disinfection take the place of concurrent disinfection.

Restriction of Food and Food Handlers

Regulation 17. When a case of diphtheria, typhoid fever, para-typhoid scarlet fever, septic sore throat (epidemic), tuberculosis, gonorrhea, or syphilis occurs on a premises where milk or food is kept, handled or sold. it shall be the duty of the health officer or quarantine officer to institute such measures as he may deem necessary to prevent the spread of the disease and the contamination of such foods.

Communicable Diseases on Dairy Farms

Regulation 18. When any of the diseases listed in Regulation 17 occur, it shall be the duty of the local health officer or quarantine officer to:

a. Prohibit the removal of milk and milk products from such farms unless the handling is done in such a manner as to preclude the possibility of contamination, and unless written approval is granted by the health officer or quarantine officer.

b. If the milk or milk products are sold outside of the local health officer's jurisdiction, he shall report immediately to the State Board of Health the place or places where such products are sold together with name and address of producer.

Removal of Persons Suffering With Communicable Diseases From One Place of Residence to Another

Regulation 19. No case of communicable disease shall be moved from a house, premises or hospital without the approval of the local quarantine or health officer; and no case of communicable disease shall be removed from one health jurisdiction to another without the approval of the health officer of each jurisdiction. In either case, necessary precautions shall be taken to prevent the spread of infection.

Measures for the Control of Communicable Diseases in School

Regulation 20. It shall be the duty of the health officer or quarantine officer in the event of an outbreak of communicable disease in any public, private, or parochial school, to make a prompt and thorough investigation and where possible, to control such outbreak by individual examination of pupils and teachers and to employ such assistance as may be necessary.

Every child absent from school for five consecutive days, or longer, must on returning to school present to the teacher a signed certificate of a health officer or a practicing physician that such child has not been affected with any infectious or contagious disease.

When any school child has been affected with, or is a "carrier" of a communicable disease, or has been excluded from school because of having been in contact with a communicable disease, it shall be the duty of the parent or guardian of such child to obtain a permit to reënter school from a health officer or practicing physician. This certificate shall be issued only when the incubation period of the disease, or period of communicability of the disease has passed, or when the organism producing the disease can no longer be demonstrated by laboratory examination.

Children living in the same house, who are not sick, may return to school before the infected child recovers, provided the attending physician or health officer gives a certificate that, to his knowledge, they have had the disease. This applies to chicken pox, measles, mumps, whooping cough and German measles, but not to scarlet fever or diphtheria.

When scarlet fever or diphtheria is present, the other children must remain at home until the sick one is well unless the sick one is isolated or removed by permission of the attending physician or the health officer to another house. In such instances, negative cultures of nose and throat of those contacts may be obtained in case of diphtheria, and in scarlet fever, an interval of eight days without rise of temperature must be allowed.

Children having pediculosis (lice), scabies (itch), ringworm or impetigo contagiosa (contagious sores) upon any part of the body shall be excluded from school. On applying for readmission a certificate from the health officer or physician shall be presented to the teacher stating that the disease has been cured and the clothing worn by the child disinfected.

Disinfectants for Use in the Control of Communicable Diseases

Regulation 21. For the purposes of these regulations, disinfectants are divided into the following general classes:

a. *Concurrent Disinfection.* If the spread of contagion is to be prevented from the patient ill with the disease, measures of disinfection must be persistently carried out from the onset of the first symptoms until the termination of the disease.

Concurrent disinfection, or disinfection during the course of the disease, should be carried out as follows:

Normal and abnormal discharges from the eyes, ears, nose, throat, skin lesions and glands should be disinfected by being collected on bits of cotton, paper or cloth and burned at once.

In handling these and other infected materials, the attendant should avoid touching, or allowing any object which is not to be immediately disinfected to touch the infected surfaces. For example, towels and bedclothes should be gathered up with the infected side in, and handled by the relatively non-infected corners and edges; they should not be put down until deposited in the boiler or other vessel in which they are to be disinfected.

The hair and skin of the patient or attendants may be cleansed by washing with soap and water, and the water used to bathe the patient, after use, should be boiled or disinfected by adding three tablespoonfuls of freshly opened chloride of lime or other disinfectant of equal strength.

Bedclothes, pillowcases, sheets, nightgowns, towels, wash cloths or any other cloth or clothing of any kind may be disinfected by being boiled with soap and water for fifteen minutes before leaving the premises or the quarantined area.

A wash boiler or tub one-third full of cold water should be kept in the sick room. All cloth or clothing used by the patient should immediately be placed in this tub. Once a day the tub should be taken to the stove and allowed to boil for fifteen minutes. Clothes so treated may be hung out to dry. Prompt moistening and boiling is much better than immersion in any disinfectant.

Dishes, glassware, knives, forks, spoons or any utensils used in feeding the patient, should be promptly disinfected by being washed and boiled.

Dishes used by the patient should not be used by other members of the family but should be set aside for the use of the patient only.

Food from the sick room should never be eaten by anyone, but should be collected and burned at once.

Thermometers, rectal tubes, douche nozzles, etc., should not be removed from the sick room until the termination of the case. They should be washed clean with soap and water after each use and should be kept immersed in denatured alcohol or other disinfectant when not in use.

BOWEL DISCHARGES. Disinfection of the bowel discharges shall be carried out by adding three tablespoonfuls of freshly opened chloride of lime to a liquid stool and stirring the mixture until all parts of the stool have been thoroughly mixed with the disinfecting agent. This mixture should be allowed to stand, protected from flies for thirty minutes before being discharged into a sewer or privy vault.

Solid stools should have one pint of water added and be thoroughly stirred until the stool assumes a liquid character and all lumps broken and then treated as described above.

BLADDER DISCHARGES. Disinfection of bladder discharges should be carried out by stirring three tablespoonfuls of freshly opened chloride of lime into each passage and allowing this mixture to stand 30 minutes before being discharged into a sewer or privy vault.

Bed pans and urinals must be thoroughly cleaned after each time used, and rinsed out and left containing a small amount of dry chloride of lime. Sufficient chloride of lime should be left in the receptacles so that the chloride will be repugnant to flies. These receptacles should also be kept screened away from flies.

All persons on leaving the room should wash their hands thoroughly with soap and water and if possible rinse their hands with a disinfecting solution.

Washable gowns should be worn by the nurse and should be removed just prior to leaving the room.

b. *Terminal Disinfection.* Smallpox, scarlet fever, diphtheria, epidemic cerebro-spinal meningitis, acute anterior poliomyelitis and tuberculosis are the diseases that require terminal disinfection under the regulations passed by the North Carolina State Board of Health.

It is the duty of the health officer, just prior to the release of a case of communicable disease requiring terminal disinfection, to instruct the householder how the premises must be disinfected.

For Disinfection of House and Contents Occupied by Patient

At the termination of the quarantine the premises occupied by the patient should be thoroughly disinfected in accordance with the following directions: The disinfection should not be attempted unless the day is clear and sunny. All bed linen, night garments and other fabrics that will not be injured by boiling should be boiled. All other articles, such as mattresses, rugs, bed and other furniture should be placed out of doors in direct sunlight. This should be done early in the morning. The next day they should be turned over or moved so that all surfaces may be exposed to the sun for at least one day.

After the room has been cleared, the floor and all woodwork should be thoroughly scrubbed with soap and water. They should then be mopped with a solution of ten ounces (twenty tablespoonfuls) of formalin to one gallon of water. The room should then be closed and allowed to remain closed until late in the afternoon, when it may be opened up, aired out, and the furniture replaced. The furniture should be mopped off with the above solution before being replaced.

Gaseous fumigation is not required or recommended, and if fumigation is used at the request of the people it should in no instance replace the measures required by the above regulation as the disinfection must be carried out in all cases of the communicable diseases listed as requiring terminal disinfection.

Governing the Funerals of Those Dead by Certain Communicable Diseases

Regulation 22. Funerals of those dead of:

Typhoid
Typhus Fever
Para-typhoid
Diphtheria
Cholera
Plague
Scarlet Fever
Septic Sore Throat
Tularemia

when conducted on the premises where such deceased person died, shall be attended only by the immediate family, relatives, clergyman, undertaker and necessary attendants. When held from a place other than where the person died, the health officer or quarantine officer may, if the body has been embalmed and enclosed to his satisfaction, permit a public funeral, provided persons as may be carriers of the infection by reason of contact with the deceased are not permitted to attend. Bodies dead of the diseases mentioned in regulation 22, if not embalmed, must be buried within 24 hours.

Transportation of Persons Having or Thought to be Suffering With a Communicable Disease

Regulation 23. Section 1. *Persons not allowed to travel.*—No person knowing or suspecting himself to be afflicted with plague, cholera, smallpox, typhus fever, cerebro-spinal meningitis, poliomyelitis, whooping cough, measles, scarlet fever, or yellow fever, shall apply for, procure, or accept transportation in any railway train, car, or other conveyance of a common carrier, nor shall any person apply for, procure, or accept such transportation for any minor, ward, patient, or other person under his charge if known or suspected to be so afflicted.

Section 2. *Persons not accepted for travel.*—Common carriers shall not accept for transportation in any railway train, car, or other conveyance any person known by them to be afflicted with any of the diseases enumerated in Section 1.

Section 3. *Restricted travel.*—Common carriers shall not accept for transportation on any railway train, car, or other conveyance any person known by them to be afflicted with chicken pox, mumps, influenza, pneumonia, epidemic encephalitis, septic sore throat, rubella, or any person known to be a carrier of these diseases, unless such person is placed in a compartment separate from other passengers, is accompanied by a properly qualified nurse or other attendant, and unless such nurse or attendant shall agree to comply and does so comply with the following regulations:

a. Communication with the compartment within which the patient is traveling shall be restricted to the minimum consistent with the proper care and safety of the patient.

b. All dishes and utensils used by the patient should be placed in a five per cent solution of carbolic acid or other fluid of equivalent disinfecting value for at least one hour after they have been used and before being allowed to leave the compartment.

c. All sputum and nasal discharges from the patient should be received in gauze or paper, which should be deposited in a paper bag or in a closed vessel, and should be destroyed by burning.

d. Said nurse or attendant should, after performing any service to the patient, at once cleanse the hands by washing them in a two per cent solution of carbolic acid or other fluid of equivalent disinfecting value.

Section 4. *Typhoid and dysentery.*—Common carriers shall not accept for transportation on any railway train, car, or other conveyance any person known by them to be afflicted with typhoid fever, para-typhoid, or dysentery, unless said person is placed in a compartment separate from other passengers, is accompanied by a properly qualified nurse or other attendant, and unless said nurse or attendant shall agree to comply and does so comply with the following regulations:

a. Communication with the compartment in which the patient is traveling shall be limited to the minimum consistent with the proper care and safety of the patient.

b. All dishes and utensils used by the patient shall be placed in a five per cent solution of carbolic acid or other fluid of equivalent disinfecting value for at least one hour after they have been used and before being allowed to leave the compartment.

c. All urine and feces of the patient shall be received into a five per cent solution of carbolic acid or other fluid of equivalent disinfecting value, placed in a covered vessel, thoroughly mixed, and allowed to stand for at least two hours after the last addition thereto before being emptied.

d. A sheet of rubber or other impervious material shall be carried and shall be spread between the sheet and the mattress of any bed that may be used by the patient while in transit.

e. Said nurse or attendant shall use all necessary precautions to prevent the access of flies to the patient or his discharges, and after performing any service to the patient shall at once cleanse the hands by washing them in a two per cent solution of carbolic acid or other fluid of equivalent disinfecting value.

f. Provided, that if a person with typhoid or dysentery is presented at a railway station in ignorance of these regulations and his transportation is necessary as a life-saving or safeguarding measure, an emergency may be declared and the patient may be carried a reasonable distance in a baggage car if accompanied by an attendant responsible for his care and removal: Provided also, that regulations a, b, c, d, and e of this section shall be complied with insofar as the circumstances will allow, and that all bedding, clothing, rags, or cloths used by the patient shall be removed with him: And provided further, that any parts of the car which have become contaminated by any discharges of the patient shall be disinfected as soon as practicable, but not later than the end of the run, by washing with a five per cent solution of carbolic acid or other fluid of equivalent disinfecting value.

Section 5. *Restricted application for transportation.*—No person knowing or suspecting himself to be afflicted with any of the diseases memtioned in Sections 3 and 4 shall apply for, procure, or accept transportation in any railway train, car, or other conveyance of a common carrier, nor shall any person apply for, procure, or accept such transportation for any minor, ward, patient, or other person under his charge if known or suspected to be so afflicted unless he shall have agreed to and made all necessary arrangements for complying, and does so comply, with the regulation set forth in said Sections 3 and 4.

Section 6. *Suspected cases.*—If a conductor or other person in charge of a railway train, car, or other conveyance of a common carrier, or an agent or other person in charge of a railway station, shall have any reason to suspect that a passenger or a person contemplating passage is afflicted with any of the diseases enumerated in Sections 1, 3 and 4, he shall notify the nearest health officer, or company physician, if the health officer is not available, by the quickest and most practicable means possible, of his suspicion; and said health officer or physician shall immediately proceed to the train, car or other conveyance at the nearest possible point, or to the railway station, to determine whether such disease exists.

Section 7. *Disposition.*—If the health officer or physician, as provided for in Section 6, shall find any such person to be afflicted with any of the diseases enumerated in Sections 1, 3 and 4, he shall remove such person from the station or conveyance, or shall isolate him and arrange for his removal at the nearest convenient point; shall treat the car or other conveyance as infected premises, allowing it to proceed to a convenient place for proper treatment if in his judgment consistent with the public welfare, in such case notifying the health officer in whose jurisdiction the place is located; and shall take such other measures as will protect the public health: Provided, that if not prohibited in Sections 1 and 2 of these regulations the afflicted person so found may be allowed to continue his travel if arrangements are made to comply, and he does so comply, with the requirements of the section of these regulations pertaining to the disease with which he is afflicted.

Section 8. *Pulmonary tuberculosis.*—Common carriers shall not accept for transportation any person known by them to be afflicted with pulmonary tuberculosis in a communicable stage unless said person is provided with (a) a sputum cup made of impervious material and so constructed as to admit of being tightly closed when not in use, (b) a sufficient supply of gauze, papers, or similar articles of the proper size to cover the mouth and nose while coughing or sneezing, (c) a heavy paper bag or other tight container for receiving the soiled gauze, paper, or similar articles; and unless such person shall obligate himself to use the articles provided for in the manner intended, and to destroy said articles by burning or to disinfect them by immersing for at least one hour in a five per cent solution of carbolic acid or other solution of equivalent disinfecting value; nor shall any person knowing himself to be so afflicted apply for, procure, or accept transportation unless he shall have agreed to and made all necessary arrangements for complying and does so comply with the regulations as set forth in this section.

Section 9. *Conveyances vacated by infected persons.*—Immediately after vacation by a person having any of the diseases mentioned in Sections 1, 3, 4 and 8, any berth, compartment, or stateroom should be closed and not again occupied until properly cleaned and disinfected, and all bedding, blankets, and linen in any such space should be laundered or otherwise thoroughly cleaned and disinfected before being again used.

Obstructing Health Officers

Regulation 24. No person shall interfere with or obstruct the entrance to any house or premises, or the inspection or examination of any occupant thereof by any local health officer, his duly authorized agent or a representative of the State Board of Health in the proper discharge of his official duties.

Enforcement

Regulation 25. It shall be the duty of all local (municipal and county) boards of health, health departments and health officers to obey and enforce the provisions of these regulations, and whenever any local board of health wilfully neglects or refuses to comply with the provisions of these regulations, and it is apparent that an epidemic of a communicable disease threatens to invade other municipalities or counties, it then becomes the duty of the State Board of Health to carry out the provisions of the law in such municipality or county, and the necessary expense incurred shall be paid by the respective municipality or county.

Penalty for Violation

Regulation 26. Any person mentioned in these regulations who shall wilfully neglect or refuse to comply with any of the provisions of these regulations shall be guilty of a misdemeanor and shall be punished in a manner prescribed by law, and it is the duty of the district solicitor to prosecute any violation of these regulations.

Local Boards of Health May Make Additional Rules and Regulations

Regulation 27. These regulations shall be considered by all quarantine and health officers as minimum requirements for the prevention and control of communicable diseases and municipal and county boards of health shall have authority to make and enfore such additional rules and regulations as may be necessary for the protection of the public health, provided such rules and regulations do not conflict with the provisions of these regulations.

SECTION II

SUGGESTED OUTLINE OF PROCEDURE FOR HEALTH OFFICERS AND QUARANTINE OFFICERS IN CONTROL OF THE NOTIFIABLE DISEASES

It is difficult to specify the steps to be taken by health officers and quarantine officers in connection with every situation which may arise without making the regulations so inflexible as to result in unnecessary hardship in many instances. These regulations have been drawn, therefore, so as to allow the health officer and quarantine officer the exercise of considerable discretion in their enforcement. Every health officer and quarantine officer is expected to familiarize himself thoroughly with the regulations governing the control of communicable diseases and with the suggested outline of procedure contained herein, which it is hoped will be useful as a practical guide.

Epidemiological Investigations

Wherever and whenever possible, the health officer, quarantine officer or their duly authorized agents should make a careful epidemiological investigation of cases of communicable diseases reported to them. A uniform record card is necessary for each case in order to record the facts systematically. The State Board of Health will supply epidemiological record cards for this purpose.

Whenever any disease becomes unduly prevalent, the State Board of Health will furnish assistance to the local health officer upon his request in determining the source of the outbreak as a basis for its control.

The Control of Contacts

One often experiences difficulty in determining who may be considered a "contact" and in deciding what restrictions should be enforced upon persons who have been associated with cases of communicable diseases in varying degrees of intimacy. The regulations provide that "contacts" be controlled in the same manner as cases, but permit modifications in the degree of control to be exercised whenever in the judgment of the health officer the modifications will not endanger the spread of the disease.

In determining the degree of control to be exercised, the following points should be considered:

1. The seriousness of the disease.
2. The possibility of the individual spreading the infection.
3. The degree of transmissibility of the disease.
4. The duration and intimacy of the contact.
5. The degree of immunity and susceptibility of the exposed person as decided by age, previous attacks of the disease, by specific test, or previous vaccine or serum treatment.
6. Facilities available for observation of possible contacts during the incubation period of the disease.

No decision should be made without first considering the possibility of all the factors mentioned above.

Contacts in School

Other children in the same school with a case of communicable disease can usually be controlled by permitting them to remain in school. If this is done, they should be inspected at frequent intervals in order to detect the early signs and symptoms of the disease and to institute additional measures for control as specified for each disease.

Immunity to Diseases

In addition to natural immunity to certain disease and immunity acquired by reason of a previous attack of a disease, persons may be regarded as immune following vaccine or serum treatment in the case of:

Smallpox. a. By successful vaccination with fresh, ripe, glycerinated cow pox vaccine, provided not more than five years have elapsed since the vaccination.

Typhoid and Para-typhoid Fever. b. After inoculation with two and one-half billion typhoid and para-typhoid bacilli given in three divided doses one week apart, provided not more than two years have elapsed since the inoculation.

Diphtheria. c. For a period of three weeks after an inoculation of at least 1,000 units of diphtheria antitoxin. After a period of three months has elapsed since inoculations with toxin-antitoxin in 1 c.c. doses given at weekly intervals for three, preferably five, weeks up to a period of five years. If Schick test is negative.

Scarlet Fever. d. After inoculation with at least 40,000 skin test doses of scarlet fever streptococcus antitoxin in a period of five weeks, not more than two years having elapsed since the inoculation. If the Dick test is negative.

Conduct of Isolation in the Home

In every case of communicable disease requiring isolation, the health officer should give the family detailed instructions as to the method of handling such case so as to protect other members of the household and prevent the spread of the infection from the household.

The patient should be kept, whenever possible, in a separate room and no one except the nurse and necessary attendants should be allowed to enter the room with the patient. It is suggested that a sheet should be hung over the door, not to prevent the infection from being conveyed from the air of the isolated room, but because it serves as an effective warning to the other members of household to keep out.

All unnecessary furniture and furnishings should be removed from the quarantined room. In particular, all rugs, draperies and articles which cannot be cleaned easily should be removed. It should be borne in mind, however, that materials removed from a room in which the patient has been kept during the early, undiagnosed stages of the disease are just as infectious as, and probably more infectious than, materials which are allowed to remain in the room until the patient has recovered.

Concurrent Disinfection

If the spread of contagion is to be prevented from the patient ill with the disease, measures of disinfection must be persistently carried out from the onset of the first symptoms until the termination of the disease.

Concurrent disinfection, or disinfection during the course of the disease, should be carried out as follows:

1. Normal and abnormal discharges from the eyes, ears, nose, throat, skin lesions, and glands, should be disinfected by being collected on bits of cotton, paper or cloth and burned at once.

2. In handling these and other infected materials, the attendant should avoid touching, or allowing any object which is not to be immediately disinfected to touch the infected surfaces. For example, towels and bedclothes should be gathered up with the infected side in and handled by the relatively non-infected corners and edges; they should not be put down until deposited in the boiler or other vessel in which they are to be disinfected.

3. The hair and skin of the patient or attendants may be cleansed by washing with soap and water, and water used to bathe the patient should be boiled or disinfected by adding three tablespoonsful of freshly opened chloride of lime or other disinfectant of equal strength, after use.

4. Bedclothes, pillow-cases, sheets, nightgowns, towels, wash-cloths or any other cloth or clothing of any kind may be disinfected by being boiled with soap and water for fifteen minutes before leaving the premises or the quarantined area.

5. A washboiler or tub one-third full of cold water should be kept in the sick room. All cloth or clothing used by the patient should immediately be placed in this tub. Once a day the tub should be taken to the stove and allowed to boil for fifteen minutes. Clothes so treated may be hung out to dry. Prompt moistening and boiling is much better than immersion in any disinfectant.

6. Dishes, glassware, knives, forks, spoons, or any utensils used in feeding the patient should be promptly disinfected by being washed and boiled.

Dishes used by the patient should not be used by other members of the family but should be set aside for the use of the patient only.

7. Food from the sick room should never be eaten by anyone, but should be collected and boiled or burned at once.

8. Thermometers, rectal tubes, douche nozzles, etc., should not be removed from the sick room until the termination of the case. They should be washed clean with soap and water after each use and should be kept immersed in denatured alcohol or other disinfectant when not in use.

9. Bowel discharges. Disinfection of the bowel discharges shall be carried out by adding three tablespoonsful of freshly opened chloride of lime to a liquid stool and stirring the mixture until all parts of the stool have been thoroughly mixed with the disinfecting agent. This mixture should be allowed to stand, protected from flies for 30 minutes before being discharged into a sewer or privy vault.

Solid stools should have one pint of water added and be thoroughly stirred until the stool assumes a liquid character and all lumps broken and then treated as described above.

10. Bladder discharges. Disinfection of bladder discharges shall be carried out by stirring three tablespoonsful of freshly opened chloride of lime into each passage and allowing this mixture to stand 30 minutes before being discharged into a sewer or privy vault.

11. Bed pans and urinals must be thoroughly cleaned after each time used and rinsed out and left containing a small amount of dry chloride of lime. Sufficient chloride of lime should be left in the receptacles so that the chloride will be repugnant to flies. These receptacles should also be kept screened away from flies.

12. All persons on leaving the room should wash their hands thoroughly with soap and water and if possible rinse their hands with a disinfecting solution.

13. Washable gowns should be worn by the nurse and should be removed just prior to leaving the room.

Terminal Disinfection

This is recommended in the case of some diseases, but in no case is it as important as concurrent disinfection. Just prior to the removal of the quarantine placard the health officer should assure himself that all infected articles in the household have been rendered free from the infectious agent of the disease.

Bedsteads, chairs, tables, floors, doors, woodwork, windows, etc., should be scrubbed with soap and hot water. All bedclothes, sheets, towels, and other washable articles should be thoroughly boiled. Clothing which cannot be boiled and mattresses and pillows should be placed out-of-doors in the sunlight. Milk bottles or food containers should be boiled.

Gaseous Fumigation is Not Required or Recommended

If fumigation is used by a health officer, it should be supplementary to, and should in no instance replace, the measures of concurrent and terminal disinfection required by the regulations.

Minimum Requirements

When the disease is:

ANTHRAX

1. Notification is required within twenty-four hours.

2. Investigation of cases must be made to confirm diagnosis and to determine sources of infection.

3. Placarding, isolation, and quarantine of attendants are required pending.

4. Special instructions from the State Board of Health should be requested by wire.

MENINGOCOCCUS MENINGITIS

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases must be made by local health officer to determine source of infection and contacts.

3. Placarding the room occupied by the patient is required.

4. Isolation of the patient in a separate room is required and none except nurse or attendant should come in contact with the patient.

5. Concurrent disinfection must be practiced for all discharges and all articles contaminated therewith.

6. Terminal disinfection is required.
7. Release: Fourteen days after onset.

Contacts

8. The nurse or attendant must remain on the premises.
9. Other adults in the household, if not in contact with the patient and if their ocupation does not bring them in contact with children or with the handling of food, may be granted a provisional permit by the health officer to enter and leave the premises.
10. Adults and children in the household may be removed to another household and released after quarantine for ten days.
11. Contacts in school should be observed frequently for early symptoms.

General Measures

12. Sale of milk or food from infected premises should be prohibited unless precautions satisfactory to health officer are taken and written permit given. If milk or milk products are being sold in another health jurisdiction, the health officer must immediately inform the State Board of Health.
13. Milk containers are not to be removed from premises.
14. Unusual prevalence should be reported immediately to the State Board of Health.

CHICKEN POX

The Case

1. Notification is required within twenty-four hours.
2. Investigation of cases must be made by health officer in person if the patient is over fifteen years of age or if smallpox is epidemic.
3. Placarding is required.
4. Exclusion from school and from contact with children who have not had the disease is required.
5. Concurrent disinfection must be practiced, but terminal disinfection is not necessary.
6. Release: When primary scabs have disappeared.

Contacts in Home

7. The nurse, attendant and other adults in the house are subject to no restrictions.
8. Children known to be immune are subject to no restrictions.
9. Children who have not had the disease must be confined to the premises for 21 days.

Contacts in School

10. Children in school should be observed frequently to detect early cases.

General Measures

11. School authorities should be notified of the case, should be instructed to observe all children carefully for three weeks after exposure for any sign of skin lesions, to exclude from school any children with suggestive symptoms, and to notify the health officer.

12. Chicken pox in adults is comparatively rare and the possibility of smallpox should be kept in mind.

DIPHTHERIA

The Case

1. Notification is required within twenty-four hours.
2. Investigation of cases is to be made by the local health officer to determine, if possible, source and contacts.
3. Placarding and quarantining of the house or apartment is required.
4. Isolation of the patient in a separate room is required, and none except the nurse or attendant should come in contact with the patient.
5. Concurrent disinfection must be practiced for all nose and mouth discharges or other infectious discharges, and all articles contaminated directly or indirectly therewith.
6. Terminal disinfection is required.
7. Release: After two negative nose and throat cultures taken at least 24 hours apart and 12 days after onset, show the absence of the diphtheria bacillus.

Contacts in Home

8. Nurse or attendant and others coming in contact with the patient should be quarantined on the premises and released after one negative culture is secured.
9. Other adults not in association with the patient, whose occupation does not bring them in contact with children or with the handling of milk or food, may be given a provisional permit by the health officer to enter and leave the premises.
10. Children known to be immune by reason of a previous attack of a disease, or a negative Schick test may be dealt with as adults.
11. Children not known to be immune may be removed to and quarantined in another household where there are no other children, and then are to be released and allowed to return to school: (a) after two negative nose and throat cultures, taken 24 hours apart, show the absence of the specific organism; (b) if after seven days they show no symptoms of the disease.
12. All non-immune children in the same household under ten years of age may be given a prophylactic injection of 1,000 units of diphtheria antitoxin to produce a temporary passive immunity. At the end of four weeks this should be followed by active immunization with diphtheria toxin-antitoxin. Such children should be kept in quarantine and under observation until the placard is removed and a negative throat culture secured.

Contacts in School

13. If the pupil has attended school in an infectious stage of diphtheria, the health officer should visit the school, take nose and throat cultures, make Schick tests and inspect the throats of all children in the same room with the patient or who have been in close contact.
14. School authorities should be notified of the case, should be instructed to observe all children carefully for seven days after exposure

for any sign of sore throat, to exclude from school any children with suggestive symptoms, and to notify the health officer.

15. Parents of contacts should be instructed to call the family physician on the first appearance of any symptoms suggestive of diphtheria.

Other Contacts

16. If other children have been in close contact with the case, the health officer should make a nose and throat culture and keep under observation for seven days after last contact.

Diphtheria Carriers

17. A carrier of virulent diphtheria bacilli is subject to the same restrictions as a clinical case of diphtheria until released by two successive negative cultures, but may be released at any time when the two successive cultures are found negative, or when a microscopically positive culture is found to be non-virulent.

18. If the carrier state persists longer than eight weeks the State Board of Health should be asked for advice as to the disposition of the case.

19. Removal of adenoids and tonsils has been found to be the most effective method of ending the carrier state.

General Measures

20. Sale of milk or food from infected premises should be prohibited unless precautions satisfactory to the health officer are taken and written permits given. If milk or milk products are being sold in another health jurisdiction, the State Board of Health must be notified immediately.

21. Milk containers are not to be removed from quarantined premises unless previously boiled.

22. Immunization with toxin-antitoxin, especially between the ages of one and six, should be promoted or given by the health officer or the attending physician.

GERMAN MEASLES

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases is not necessary except where mistaken diagnosis is suspected.

3. Placarding is not required.

4. Exclusion from school, all public gatherings, common carriers, etc., and from contact with susceptible children is required.

5. Concurrent disinfection is required, but terminal disinfection is not required.

6. Release: Seven days after onset.

Contacts

7. Adult contacts are subject to no restrictions.

8. Susceptible children in the household should be kept under observation and excluded from school for the period between 14 days from first exposure and 21 days from last exposure.

9. Contacts in school should be observed frequently to detect early symptoms.

INFLUENZA AND PNEUMONIA

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases need not be made.

3. Placarding is not required.

4. Exclusion from school and public gatherings is required, and patients should be kept out of contact with others.

5. Concurrent disinfection is required, but terminal disinfection is not necessary.

Contacts

6. Contacts are subject to no restrictions unless themselves infected.

MEASLES

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made where possible.

3. Placarding of the room occupied by the patient is required.

4. Isolation is required from early catarrhal symptoms (therefore before a definite diagnosis can be made, in susceptibles known to have been exposed), until seven days after eruption appears.

5. Concurrent disinfection must be practiced, but terminal disinfection is not necessary.

6. Release: Seven days after eruption appears.

Contacts

7. Children known to be immune by reason of a previous attack of the disease, and adults are subject to no restrictions.

8. Children in household, unless patient is isolated, and others in close contact, if not known to be immune, should be excluded from school and quarantined for a period of fourteen days from last exposure.

9. Children in school and other casual contacts, when possible, should be inspected daily to detect early catarrhal symptoms.

General Measures

10. School authorities should be instructed to:

a. Observe all children each day for any signs of illness.

b. Exclude from school any child with a cold, inflamed eyes, skin rash or fever.

c. Notify health officer of suspicious cases.

11. Advise parents of importance of keeping all infants and children under five years of age away from possible contact with other children when measles is prevalent, and of guarding patients against secondary pneumonia.

12. The administration of measles convalescent serum or parent's immune serum to exposed children is of great value in preventing or modifying the disease, and is especially recommended for infants and young children.

OPHTHALMIA NEONATORIUM

1. Notification is required within twenty-four hours.

2. Midwives are required by statute to report all cases of soreness or inflammation of babies' eyes to health officer or to some competent practicing physician.

3. Investigation of cases should be made by health officer immediately to determine if prophylactic solution was used as required by statute; and to see that prompt and adequate treatment is being provided.

4. Observation and rigid concurrent disinfection must be practiced, but terminal disinfection is not required.

5. Contacts are subject to no restriction unless themselves suspected of infection.

6. The statutes require physicians, nurses and midwives to treat the eyes of every infant, whose birth was attended by them, with a prophylactic solution immediately after birth.

7. Approved prophylactic solutions are:

Silver nitrate	1%
Argyrol	15%

8. See also instruction of the State Board of Health for use of prophylactic solutions.

PELLAGRA

1. Notification is required within twenty-four hours.
2. Placarding, isolation or disinfection are not required.
3. Pellagra is not a communicable disease.

RABIES

The Case

1. Notification is required within twenty-four hours.
2. Investigation of cases should be made to discover rabid animals and persons or animals bitten by rabid animals.
3. Placarding is not required.
4. Isolation is not required.
5. Concurrent disinfection of all nose and mouth discharges and articles soiled therewith should be practiced.
6. Terminal disinfection of articles soiled by discharges of patient must be practiced.

Persons Exposed

7. When a person is bitten by a dog with no symptoms of rabies, do not kill the dog, but chain it up and watch it carefully for the development of symptoms, making certain that the dog being watched is unquestionably the one which did the biting.
8. When the dog has symptoms of rabies, then kill it and have the head shipped in ice to the State Laboratory of Hygiene for examination.
9. When a person is bitten by a dog with symptoms of rabies, or if the conditions or identity of the dog cannot be determined, the Pasteur treatment should be taken.

SCARLET FEVER

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made by the local health officer to determine the source of infection and contacts.

3. Placarding and quarantining of the house or apartment is required.

4. Isolation of the patient in a separate room is required, and no one except the nurse or attendants should come in contact with the patient.

5. Concurrent disinfection is required for all discharges from nose and throat and all articles contaminated therewith.

6. Terminal disinfection is required.

7. Release: Three weeks from appearance of the eruption, provided abnormal discharges have ceased. The throat glands and ears should be inspected carefully, preferably two unannounced inspections should be made before the case is released. No case should be released with an active septic process.

Contacts in Home

8. The nurse or attendants should be quarantined on the premises until the case is released.

9. Adults not in association with the patient whose occupation does not bring them in contact with children or with the handling of milk or foods may be granted a provisional permit to enter and leave the premises.

10. Children known to be immune by reason of a previous attack of the disease or a negative skin test (Dick test) are to be dealt with as adults. Very strict isolation of the patient, however, should be assured.

11. Children not known to be immune may be removed to and quarantined in another household where there are no children for a period of seven days, and then released and may return to school. All children not known to be immune who have remained in the house with a case must stay in quarantine until the placard is removed.

Contacts in School

12. All children in school should be inspected daily by the health officer to detect early mild and missed cases.

13. The school authorities should be notified by the health officer of the case, should be instructed to observe all children carefully for seven days for any signs of illness, and should exclude from school any children with suggestive symptoms and notify the health officer.

14. Parents of contacts should be instructed to call the family physician on the first appearance of sore throat, chill, rise in temperature or rash.

SEPTIC SORE THROAT

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made to determine the source of infection; especially the relation of milk to the case.

3. Placarding and quarantining of the room occupied by the patient is required.

4. Isolation is required.

5. Concurrent disinfection of all discharges from nose and throat, and all contaminated articles is required, but terminal disinfection is not necessary.

Contacts

6. Contacts in same house must not engage in handling of milk or food.

General Measures

7. Milk or food must not be sold from infected premises unless precautions satisfactory to health officer are taken and written permits given. If milk or milk products are being sold in another health jurisdiction, the State Board of Health must be notified immediately by wire.

8. Milk containers must not be removed from infected premises until necessary precautions are taken for sterilization.

9. This disease is usually milk-borne and every effort should be made to discover the source, and prohibit further sale of milk.

SMALLPOX

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made by local health officer to determine source of infection and to locate every possible contact.

3. Placarding of the house or apartment is required, but removal to isolation hospital is to be carried out if possible.

4. Isolation of the patient in a separate room is recommended and none except nurse of attendant should come in contact with the patient.

5. Concurrent disinfection should be practiced for all nose and mouth, bowel and kidney discharges, and all articles in contact directly or indirectly with the patient.

6. When a smallpox case has attended a school within four days of the date of eruption, all pupils must be presumed to be contacts, and should be vaccinated and inspected daily to determine success of the vaccination and to detect early symptoms.

General Measures

7. In the control of smallpox, general vaccination of all non-immune persons should be urged. County Boards of Health are authorized by statute to require and provide for local or general vaccination. The action by the county board of health should be recommended by the health officer whenever the disease appears in a community and in the entire unvaccinated school population.

8. Of all infectious diseases prevalent in the United States, smallpox is the most completely preventable by public health measures. Its prevention depends on general vaccination, on the thoroughness and promptness of isolation of cases, and on the control of contacts. Each health department should have constantly on hand a small supply of smallpox vaccine shipped directly from manufacturing laboratory, stored below freezing, and used not more than 24 hours from this cold storage.

TRACHOMA

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases is desirable when possible.

3. Placarding is not required except when precautions are not taken to prevent the spread of the disease.

4. Exclusion from school, etc., is required while there are active lesions.

5. Concurrent disinfection of all discharges from lesions and articles coming in contact with these discharges is required, but terminal disinfection is not required.

6. Contacts are subject to no restriction.

General Measures

7. The attending physician and health officer should give instructions as to the seriousness of the disease and its mode of spread.

8. The importance of using individual towels, sleeping alone, and avoiding all direct and indirect contact with discharges from the eyes of the infected persons should be stressed by physicians and health officers.

9. Where trachoma is prevalent the eyelids of school children and members of the patient's household should be inspected to detect cases, and treatment should be urged for all active cases.

TUBERCULOSIS (PULMONARY)

The Case

1. Notification is required within twenty-four hours.

2. Visits to cases should be made by nurses with approval of attending physician to give instructions in care of case and in the protection of other members of the household.

3. Placarding and isolation are not required except in unusual cases where patient refuses to carry out measures to prevent the spread of the disease.

4. Concurrent disinfection is required of all infected discharges, especially sputum, but terminal disinfection is not required.

5. Release: An arrested case after three successive sputum examinations have shown absence of specific organism.

Contacts

6. Contacts are subject to no restrictive measures but should be advised to have periodic chest examinations.

7. Cases discharging bacilli should be forbidden to attend schools, engage in certain occupations such as teacher, barber, cook, waiter, kitchen helper, handling of milk or any other occupation which brings them in contact with food offered for sale or with young children.

8. Infection with bovine tubercle bacilli should be guarded against by promoting the use of pasteurized milk or milk from tuberculin tested cows.

TULARAEMIA

1. Notification is required within twenty-four hours.

2. Investigation of cases must be made to confirm diagnosis and to determine source of infection.

3. Placarding and isolation are required pending.

4. Special instructions from the State Board of Health, which should be requested by wire.

TYPHOID FEVER, PARA-TYPHOID FEVER

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made by health officer to determine, if possible, the source of infection.

3. Placarding is required only of the room occupied by the case.

4. Isolation of the patient in a separate room, screened against flies, is required.

5. Concurrent disinfection must be rigidly practiced for all discharges of the patient and articles contaminated therewith.

6. Terminal disinfection is not necessary if concurrent disinfection has been carried out.

7. Release: The placard should be removed one week after the temperature has returned to normal, and whenever laboratory facilities are available, one negative specimen of urine and feces should be secured. The patient should then be allowed to resume any occupation except handling of milk or food, but should be kept under observation and after the lapse of a month another specimen of feces and urine should be secured. If both are negative the patient should be released as non-infectious. If either culture is positive the patient should be considered as a carrier and controlled accordingly.

It is suggested that the attending physician should secure the first specimen and the health officer the second.

Laboratory release of all cases will be expected in counties with full-time health departments and are to be encouraged in other counties.

When patient is hospitalized at least one negative culture should be secured before discharge of the case.

Contacts

8. The nurse or attendant should not prepare food or engage in food or milk handling.

9. All typhoid fever contacts including all persons exposed to the same source of infection should be immunized with typhoid vaccine.

Carriers

10. Should be reported to the State Board of Health.

11. Should be instructed in detail as to care to be taken to prevent the infection of others.

12. Should not be allowed to engage in milk or food handling.

13. Should be required to report any changes of residence or occupation.

14. Should be visited regularly by the health officer to see that necessary precautions are being taken.

15. Should not be released from observation until authorization is granted by the State Board of Health.

General Measures

16. Sales of milk from dairy farm or dairy on which a case occurs should be prohibited unless precautions satisfactory to health officer are taken and written permit given. If milk or milk products are being sold in another health jurisdiction, health officer must notify immediately the State Board of Health.

17. Milk containers are not to be removed from premises until sterlized.

18. Unusual prevalence should be reported immediately to the State Board of Health.

TYPHUS FEVER

1. Notification is required within twenty-four hours.

2. Investigation of cases must be made to confirm diagnosis and to determine source of infection.

3. Placarding isolation, and quarantine of attendants are required pending.

4. Special instruction from the State Board of Health which should be requested by wire.

VENEREAL DISEASES

The Case

1. Notification is required within forty-eight hours.

2. Investigation of cases must be made if health of others is being endangered.

3. Placarding and isolation are required if health of others is being endangered.

4. Concurrent disinfection must be practiced, but terminal disinfection is not necessary.

Contacts

5. Only those contacts reasonably suspected of infection by reason of sexual contact are controlled and if infected are to be handled as a case.

General Measures

6. The physician and health officer should do everything possible to disseminate information regarding the nature and seriousness of syphilis and gonorrhea.

WHOOPING COUGH

The Case

1. Notification is required within twenty-four hours.

2. Investigation of cases should be made where practicable to determine source of infection and contacts.

3. Placarding is required.

4. Exclusion from school, all public gatherings, common carriers, etc., and from contact with susceptibles is required.

5. Concurrent disinfection is required for all nose and throat discharges and all articles in contact with these discharges, but terminal disinfection is not required.

6. Release: Three weeks after development of characteristic whoop.

Contacts in Home

7. No restrictions are placed on adults.

8. Children known to be immune need not be excluded from school.

9. Children not known to be immune should be excluded from school for a period of ten days after last contact.

10. All non-immune children in school should be inspected daily to detect early cases.

11. School authorities should be instructed to:
   (a) Observe all children carefully each day for any signs of illness.
   (b) Exclude from school any child with severe cold or cough.
   (c) Notify health officer of suspicious cases.

General Measures

12. Advise parents to guard patient against danger of secondary pneumonia, and when whooping cough is prevalent to keep all children under two years at home away from any association with other children.

YELLOW FEVER

1. Notification is required within twenty-four hours.

2. Investigation of cases must be made to confirm diagnosis and to determine source of infection.

3. Placarding, isolation and quarantine are required pending.

4. Special instructions from the State Board of Health which should be requested by wire.

Doctor Orr called attention to the presence in the State of occasional cases of fever caused by the bacillus abortus, or Malta or undulant fever. While not making this a reportable disease, upon motion of Doctor Orr, seconded by Doctor Thompson, the Secretary was directed to request the physicians of the State to report such cases as came to their attention.

Committee on revisions of rules and regulations governing the transportation of dead bodies, consisting of Doctors Crowell, Stanton and Anderson, through Doctor Crowell reported that no progress had been made. Upon motion of Doctor Thompson, seconded by Doctor McDaniel, the Committee was continued with the Secretary added as a member and instructed to proceed with the necessary revision, to mail copy of same to each member of the Board for approval or disapproval, and the same to become effective on and after such approval by a majority of the Board.

The Secretary explained the proposed districting of the State into four districts for the better supervision and promotion of county health work, pointing out that the director, Doctor Sisk, was unable satisfactorily without assistance, to perform such duties throughout the State. Under the proposed plan Doctor Register of the Bureau of Vital Statistics, Doctor Taylor of the Bureau of Epidemiology and Doctor Collins of the Bureau of Maternity and Infancy, together with Doctor Sisk, will each be assigned a specific district and charged with the responsibility of supervising and promoting county health work in his assigned district, with Doctor Register, Taylor and Collins at the same time continuing to direct the work of their respective bureaus. The Secretary stated that such proposed plan was not entirely satisfactory, but that it was as satisfactory as present finances will permit. The districts as proposed were mapped as follows:

Western District—Dr. Collins: Cherokee, Clay, Graham, Macon, Swain, Jackson, Transylvania, Haywood, Henderson, Buncombe, Madison, Yancey, McDowell, Rutherford, Mitchell, Avery, Burke, Cleveland, Watauga, Caldwell, Catawba, Lincoln, Gaston, Mecklenburg, Union.

Middle Western District—Dr. Register: Ashe, Alleghany, Wilkes, Surry, Stokes, Rockingham, Caswell, Person, Yadkin, Forsyth, Guilford, Alamance, Orange, Durham, Alexander, Iredell, Davie, Davidson, Randolph, Rowan, Cabarrus, Stanly, Montgomery.

Middle Eastern District—Dr. Sisk: Anson, Richmond, Scotland, Robeson, Columbus, Bladen, Hoke, Moore, Cumberland, Sampson, Duplin, Harnett, Lee, Johnston, Wayne, Chatham, Wake, Wilson, Franklin, Nash, Granville, Vance, Warren, Halifax, Northampton.

Eastern District—Dr. Taylor: Brunswick, New Hanover, Pender, Onslow, Carteret, Jones, Lenoir, Craven, Pamlico, Greene, Pitt, Beaufort, Edgecombe, Martin, Washington, Hyde, Bertie, Tyrrell, Dare, Hertford, Chowan, Gates, Perquimans, Pasquotank, Camden, Currituck.

Upon motion of Doctor Tucker, seconded by Doctor McDaniel, the proposed plan was unanimously approved.

At the request of the Secretary the budget requested and the appropriations made by the General Assembly were explained in detail by Mr. Wilson. The budget submitted to the Budget Commission requested appropriations as follows:

	1929-30	*1930-31*
Administration	$ 30,260	$ 31,140
County Health Work	130,215	150,215
San. Eng. and Inspection	89,990	88,150
Epidemiology	15,055	15,535
Health Education	12,600	13,500
Life Extension	9,100	9,100
Maternity and Infancy	60,225	62,845
Med. Insp. of Schools	62,605	62,605
Vital Statistics	25,740	25,740
Laboratory	75,000	76,000
Printing	27,500	27,500
Total	$538,290	$562,330

Legislative appropriations on the basis of this budget request appropriated as follows:

	1929-30	*1930-31*
Administration	$ 29,745	$ 29,745
County Health Work	123,415	123,415
San. Eng. and Inspection	75,720	75,720
Epidemiology	10,490	10,490
Health Education	11,410	11,410
Life Extension	9,100	9,100
Maternity and Infancy	50,580	50,580
Medical Insp. of Schools	58,980	58,980
Vital Statistics	25,630	25,630
Laboratory	68,000	68,000
Printing	20,900	20,900
Total	$483,970	$483,970

In addition a special appropration of $2,500 each year was made for cancer control under the direction of Doctor H. H. Bass, and $5,000 the first year and $10,000 the second year for orthopedic clinics conducted by the Vocational Rehabilitation division of the Department of Education, these two appropriations being budgeted with that of the Board. Shortages in the several divisions caused by lack of appropriations were pointed out by Mr. Wilson with the explanation that for the first year a contribution of approximately $10,000 from the Rockefeller Foundation given to assist in the promotion of work by the Life Extension and Epidemiology divisions could be utilized in caring for the most acute needs, but that there is no guarantee that such contribution will be available for the second year.

Upon motion of Doctor Thompson the Board recessed until 3 P.M.

The Board met at 3 P.M. in the King Cotton Hotel with the President, Doctor A. J. Crowell, presiding and the following members present: Doctor D. A. Stanton, Doctor Chas. C. Orr, Doctor Thomas E. Anderson, Doctor John B. Wright, Doctor L. E. McDaniel, Doctor Cyrus Thompson, Doctor E. J. Tucker and Mr. James P. Stowe.

For the information of Doctor Wright who had been absent from the morning session the notes of the Secretary covering the meeting were read.

Doctor Wright expressed the opinion that personally he believed a mistake was made in transferring the work of water analysis from the supervision of Doctor Shore to that of Mr. Miller, and stated further that had he been present when the matter was under consideration by the Board he would have voted against approving the transfer, but that he would stand by the majority action.

The Secretary reported the prize of $5,000 offered by the American Public Health Association last year had been awarded to the North Carolina Federation of Womens' Club for the best health work done during the year by any State Federation. The prize is not a cash prize but is payable in service through a health survey of a designated county or city. The State Federation through its committee selected Pitt County as a typical rural county for such a survey, and Doctor W. F. Walker of the American Public Health Association and Miss Anne Whitney, of the American Child Hygiene Association, have completed this work the report is now in process of being printed for distribution. Members of the Board expressed their appreciation for the splendid coöperation of the Women's Clubs of the State in aiding in carrying forward health work. Upon motion of Doctor Wright, seconded by Doctor Stanton, the Secretary was directed to formally transmit this appreciation to the Federation.

The Secretary, for the information of the Board, reviewed briefly legislation enacted by the recent General Assembly, namely the bill providing for a barbers' examining board and placing the sanitary management of barber shops under the board, and the bill providing for the licensing of mouth hygienists to teach Oral Hygiene in the public schools. The Secretary explained that both the bill to control rabies by muzzling dogs or preventing their running at large offered on recommendation of the Medical Society and the one requiring vaccination recommended by the veterinarians were defeated. Other proposed bills failing of passage was one giving authority for enforcement of State sanitary privy law to Rockingham County Board of Health within the boundaries of that county, and another to prevent the pollution of streams in Swain County by dumping waste of any sort into them.

The Secretary recommended to the Board that the time had arrived in the development of the work of the Board when in his opinion the policy should be adopted of fixing salaries of bureau or division directors upon the basis of service, accomplishment, training and responsibility. The recommendation called forth considerable discussion. President Crowell expressed the opinion that the matter was one clearly falling within the responsibility and duty of the Secretary as the executive officer of the Board to decide, and that the fixing of salaries in individual cases was not a detail upon which the Board should pass. Doctor Wright suggested that length of service should be a factor to be considered. Mr. Stowe expressed the opinion that salaries should be on basis of worth of service delivered, but that the Board should pass on the amounts in the case of heads of bureaus or divisions.

Mr. Stowe then moved that the Board should adopt as a policy the fixing of salaries of bureau or division directors on the basis of the individual's tenure, efficiency and value of service rather than that all bureau directors be on a salary parity, and that individual salaries for directors shall be approved by the Board upon recommendation of the Secretary. The motion was seconded by Doctor Stanton and unanimously adopted.

The Secretary then recommended to the Board that the salary of Doctor C. A. Shore, director of the Laboratory of Hygiene, be raised from $5,000 to $6,000 annually, and the salary of Mr. H. E. Miller, director of the Bureau of Sanitary Engineering and Inspection, be raised from $4,600 to $5,600 annually.

Doctor Wright expressed the opinion that it would be inconsistent to diminish the responsibility and personnel of the laboratory as had been done in the removal from it of the water analysis work and at the same time increase the salary of the director—that it looked like an effort to bribe Doctor Shore. The Secretary explained that instead of diminishing the work of the laboratory it was planned to materially extend its usefulness to the profession and the State by expanding its diagnostic service and extending its field in biologicals, pointing out that the development of measles convalescent serum, scarlet fever vaccine and serum for the treatment of pneumonia presented opportunities for study and development into wide usefulness and service. Doctors Anderson and Thompson joined the discussion in asking several questions about the work of the Engineering division and Doctors Stanton and Thompson both expressed the opinion that both men affected are ten thousand dollar men.

Mr. Stowe thereupon moved that the Board approve the recommendation of the Secretary fixing the annual salary of Doctor Shore at $6,000 and of Mr. Miller at $5,600, provided that funds are available and the respective increases are approved by the Salary and Wage Commission. Doctor Thompson seconded the motion, and upon vote it was carried unanimously except that Doctor Wright desired that he be recorded as voting for the raise for Doctor Shore and against that for Mr. Miller.

The Secretary called to the attention of the Board the fact that the terms of four members are expiring at this time: Doctors Crowell and Orr, gubernatorial appointees, and Doctors Anderson and McDaniel, elected by the Society. Attention was further directed to the fact that the President, Doctor Crowell, was serving the unexpired term of Doctor J. Howell Way expiring April 15, 1929.

Doctor Thompson expressed the appreciation of the members for the services rendered by Doctor Crowell and placed him in nomination for President for the term expiring April 15, 1935. The nomination was seconded by Doctors Anderson, Wright and Tucker. Mr. Stowe then moved that the Secretary be directed to cast the unanimous vote of the Board for Doctor Crowell as President, upon vote the motion was adopted and the Secretary thereupon cast the vote of the Board as directed. Doctor Crowell briefly expressed his appreciation for the confidence imposed in him by his associates, and pledged his best efforts towards continuing and furthering the splendid work of the Board.

The Secretary for the information of the Board read his annual report prepared for presentation before the Conjoint Session of the Board and the Medical Society, and upon motion of Doctor Tucker, seconded by Doctor McDaniel, the same was unanimously endorsed.

The Secretary presented an idea for the establishment of a training station for health officers, public health nurses, inspectors, and emphasized the need for such a place of training if there is to be any improvement in local public health work. He further explained that an agreement had been reached whereby Duke University Medical College would establish a Chair of Public Health, and is prepared now to elect the man for the position and have him conduct such work for the Board of Health until the College opens in 1931, provided the Board can finance it until that time. Upon the opening of the college the work would be continued at the expense of the University. Upon motion of Doctor Stanton, seconded by Doctor Tucker, the Secretary was directed to exercise his best judgment in developing the idea.

Upon motion of Doctor Thompson, the Board adjourned.

CHAS. O'H. LAUGHINGHOUSE,
Secretary.

CALLED MEETING OF BOARD

AUGUST 7, 1929

Pursuant to call by the President, the Board met in special session in the offices of the Board in Raleigh at ten o'clock on August 7, 1929, with President Crowell presiding and the following members present: Dr. Chas. C. Orr, Dr. Cyrus Thompson, Dr. Thos. E. Anderson, Dr. John B. Wright, Dr. D. A. Stanton, Dr. L. E. McDaniel, Dr. E. J. Tucker and Mr. James P. Stowe.

Reading of minutes of previous meeting was waived.

The Secretary presented the financial situation of the State as called to the attention of the institutions and departments by Governor Gardner, Director of the Budget, and the consequent effect upon the budget of the Board in attempting to meet a probable reduction in funds amounting to approximately 12.9%. He presented in detail budget summary, by divisions and by objects and items as follows:

BUDGET SUMMARY

Division	Requested		Appropriated	
	1929–30	1930–31	1929–30	1930–31
Administration	$ 30,260	$ 31,140	$ 29,745	$ 29,745
County Health Work	130,215	150,215	123,415	123,415
Engineering and Inspection	89,990	88,150	75,720	75,720
Epidemiology	15,055	15,535	10,490	10,490
Health Education	12,600	13,500	11,410	11,410
Life Extension	9,100	9,100	9,100	9,100
Maternity and Infancy	60,225	62,845	50,580	50,580
Medical Inspection, Schools	62,605	62,605	58,980	58,980
Vital Statistics	25,740	25,740	25,630	25,630
Printing	27,500	27,500	20,900	20,900
Orthopaedic Clinics			5,000	10,000
Cancer Control			2,500	2,500
Laboratory	75,000	76,000	68,000	68,000
	$ 538,290	$ 562,330	$ 491,470	$ 496,470
Deficit in Appropriation	$ 46,820	$ 65,860		

BUDGET SUMMARY BY ITEMS

Item	Requested		Appro-priated	Reduction	
	1929–30	1930–31	1929–30 1930–31	1929–30	1930–31
Personal Service	$ 193,810	$ 195,770	$ 173,910	$ 19,900	$ 21,860
Supplies and Material	9,765	9,765	7,375	2,390	2,390
Postage, Telephone and Telegraph Expense	7,465	7,705	6,895	570	610
Travel Expense	75,360	75,360	65,150	10,210	10,210
Printing	27,500	27,500	20,900	6,600	6,600
Motor Upkeep	1,200	1,200	1,000	200	200
Repairs	500	500	310	190	190
General Expense	2,500	2,500	2,450	50	50
Equipment	5,440	3,780	1,980	3,460	1,800
State Aid	143,750	166,250	140,000	3,750	26,250
Laboratory	75,000	76,000	68,000	7,000	8,000
	$ 538,290	$ 562,330	$ *483,970	$ 46,820	$ 65,860

*Does not include orthopaedic clinics or cancer control ($7,500).

The Secretary then presented a suggested reduction for the current year, amounting to a total of $40,000, which upon motion of Dr. Wright, seconded by Dr. Tucker, was approved by unanimous vote.

Suggested Budget Savings

Administration

Reduction in personal service	$1,340

The above sum was included in budget and cared for in appropriation act to permit slight increases in salaries of Mr. Wilson, Miss Reynolds, Mrs. Edwards, Miss Bretsch and Miss Blackburn. The requests for these authorized increases have been withdrawn from the Salary and Wage Commission.

County Health Work

Lapsed State Aid to counties	$1,000

From the total amount of $140,000 appropriated for this purpose financial assistance is being supplied to 45 counties as follows: to 27 counties on the basis of minimum personnel of health officer and public health nurse on full-time, $3,750 annually; to 10 counties on the basis of minimum personnel of health officer on full-time, $2,500; to 7 counties on basis of minimum personnel of one or more public health nurses, or other specified personnel, sums ranging from $1,200 in three instances, $1,800 in one, $3,140 in one, $2,500 in one, and $1,050 in another. Commitments in each case are payable only if and when minimum personnel is employed and on duty. In the course of the year there will be cases where payments from the State will not be due, as in Cherokee County where nurse will not report for duty until September 1st, in Onslow County where nurse is not yet employed, and it is estimated that a total sum of at least $1,000 will thus accrue.

Engineering and Inspection

Salary and travel for 1 assistant engineer and one sanitary inspector. $6,840

On September 1 Mr. J. S. Whitener, assistant engineer, resigns to become associate professor of Sanitary Engineering at State College. His place is not to be filled. On July 15th Mr. J. H. Edgerton, sanitary inspector, resigned to accept similar work at increased salary with the Cumberland County Health Department. His place is not to be filled.

Health Education

Salary, travel and supplies, motion pictures $2,920

The motion picture unit consists of truck, portable projector, homelight generator, operator; salary and travel of operator is $1,920, supplies $500, which includes replacements for worn films; motor upkeep, $500.

Maternity and Infancy

Salary, travel of one nurse and clerical helper $3,650

Drop one of four field nurses whose salary and travel is $3,000, and clerical helper who has been on duty temporarily at $65 per month. To the above may be added a sum of $2,000 plus in the event request for special study on fellowship for six months is granted the supervising nurse; this request now pending with the Rockefeller Foundation.

Medical Inspection of Schools

Salary and travel one nurse, two dentists $8,700

Basic organization is eight nurses and eight field dentists. One nurse at salary and travel of $2,700 to be dropped September 1. Two dentists at salary and travel of $3,000 each, places now vacant by resignation, not to be replaced. Either two or three additional dentists will be added for special county work in counties which have made special appropriations but these will not effect the Board's budget.

Life Extension Unit

Discontinue January 1 $4,550

By January 1 Dr. F. R. Taylor and his assistant will have completed the work of this unit as originally planned.

Laboratory of Hygiene

Past due water taxes $7,000

Approximately $11,000 in water taxes were past due on April 1, some of these dating back to 1919. Of this sum about $2,500 has been collected to date. Some items may not be collectible. This item was not included in the budget for the laboratory.

Miscellaneous Sources

Rockefeller Foundation and other sources	$12,000

From savings in miscellaneous items and contributions from the Rockefeller Foundation the above sum can be secured. The Rockefeller Foundation is now contributing for the current calendar year $5,000 towards the Life Extension Unit and $4,725 towards the Bureau of Epidemiology.

Summary

Administration	$ 1,340
County Health Work	1,000
Engineering and Inspection	6,840
Health Education	2,920
Maternity and Infancy	3,650
Med. Insp. of Schools	8,700
Life Extension	4,550
Laboratory	7,000
Miscellaneous	12,000
	$ 48,000
Less 1/6—effective September 1	8,000
Net Savings	$ 40,000
Appropriation	491,470
Percentage Reduction	8.1

The Secretary presented the need for certain revisions in the rules and regulations adopted by the Board at the last annual meeting under authority of Chapter 119, Section 16, Public Laws of North Carolina, Session of 1929, for the sanitary management of barber shops. Upon motion of Dr. Orr, seconded by Dr. Stanton, rules and regulations for the sanitary management of barber shops heretofore adopted were repealed, and in lieu the following adopted by unanimous vote:

RULES GOVERNING THE SANITARY MANAGEMENT OF BARBER SHOPS

1. Barber shops shall be located in buildings constructed so that they may be easily cleaned.
2. Barber shops shall be well ventilated and equipped with suitable plumbing.
3. The floors, walls, furniture and fixtures of barber shops shall at all times be kept clean; cuspidors shall be cleaned and washed every day.
4. Running water, hot and cold, shall be provided within the shop.
5. Every person serving as a barber shall thoroughly cleanse his or her hands with clean soap and running water immediately before serving each customer.
6. No person serving as a barber shall undertake to treat any disease of the skin.
7. No person serving as a barber shall permit any person to use the head rest of a barber's chair under his control unless said head rest is covered by clean, new paper or a towel that has been washed and freshly laundered since last being used.

8. Single service towels shall be provided and every person serving as a barber shall use a separate clean towel for each patron. Every towel shall be laundered after each use before being again used in the service of another person. Whenever the hair spread is used a clean single service towel or a clean unused single service sanitary neck strip shall be placed around the neck of the person being served.
9. All equipment used in the service of a patron shall be constantly maintained in a clean and sanitary manner. Instruments or appliances of any kind which come in contact with the body of a patron shall be after each separate use cleaned by washing in running water and sterlized by immersing in a solution of 2% carbolic acid or 1% formaldehyde.
10. Hair brushes and combs shall at all times be kept clean by washing in running water every time after being used.
11. All shaving cups and lathering brushes must be thoroughly cleansed with hot water before using on any customer.
12. No person serving as a barber shall attempt to control bleeding by the use of alum or other material unless said material be used in liquid form or applied as a powder on a clean towel.
13. No person serving as a barber shall shave any person when the surface to be shaved is inflamed or contains pus unless such person is shaved with brush, soap and razor other than those used on apparently well patrons.
14. All persons employed in a barber shop shall keep themselves clean, both as to person and dress.
15. No person suffering from a communicable disease in its infectious stage shall serve any patron as a barber. Every person serving as a barber shall hold at all times and display upon request by any agent of the Board of Health a certificate of physical examination issued by a licensed physician of North Carolina; such certificate shall specify whether the holder is free from a communicable disease in an infectious stage.
16. Owners and managers of barber shops shall give due attention to the physical health of their employees in so far as communicable disease is concerned. No owner or manager of a barber shop shall knowingly permit any person suffering with a communicable disease to serve as a barber in his or her shop. It shall be the duty of all owners and mangers of barber shops to see that their employees are presented with: (a) Special Bulletin No. 173-R, which is "An Act for the Prevention of Venereal Diseases" with rules and regulations for the control of same; (b) "Facts About Venereal Diseases" issued by the North Carolina State Board of Health.

The Secretary presented the health survey of Pitt County as conducted by representatives of the American Public Health Association and the American Child Health Association, this service having been awarded the State because of the health work of the North Carolina Federation of Women's Clubs, adjudged the best in the United States during the year 1928.

The Secretary reported on special trip to Washington for conference with committee of the United States Chamber of Commerce which is planning a health contest among cities belonging to the Chamber, the awards to be made on basis of adequacy of health service and improvements accomplished during the year, the cities competing to be classed according to population.

The organization of full-time health service in Person, Union and Cherokee counties was reported, the county of Person to have two public health nurses, Union one public health nurse, and Cherokee a health officer and public health nurse. The re-organization of Pamlico County with a public health nurse and a clerical assistant was also reported.

The public health nursing program in those counties where nurses are working alone was discussed at some length, particularly with regard to the nurse doing immunizations against typhoid and diphtheria. Without formal action it was the agreed judgment of the Board that such public health nurses should follow a program to be approved by the county board of health.

The Secretary called to the attention of the Board epidemic of colitis in Bumcombe County more or less general in the county and particularly in one of the summer camps, and stated that the assistance of the Board had been tendered to the health officers of the county and the City of Asheville, and to their respective boards of health. It was explained that one foci of infection, Blue Ridge, the water supply which showed contamination, had been chlorinated. In Buncombe County milk is not produced under the Standard Milk Ordinance. The prevalence of undulant fever in Charlotte and scattering in other sections of the State was also reported, the Secretary stating that efforts are now being made to check dairy herds and attempt to ascertain what connection, if any, there may be between the occurrence of undulant fever and the presence of contagious abortion in the herds. In the laboratory, as routine, agglutination tests are being made on all blood specimens submitted other than for Wassermann.

The Secretary presented the following summary of tonsil and adenoid clinics for the current year as follows: Bertie County, 100 operations with Dr. E. J. Sawyer; Martin County, 100 operations with Dr. E. J. Sawyer; Franklin County, 100 operations with Dr. B. W. Fassett; Chatham County, 100 operations with Dr. W. P. Hardee; Moore County, 100 operations with Dr. W. P. McKay; Anson County, 100 operations with Dr. J. H. Tucker; Alexander County, 100 operations with Dr. G. J. Tygett; Madison County, 100 operations with Dr. R. G. Wilson; Yancey County, 100 operations with Dr. R. G. Wilson; Mitchell County, 99 operations with Dr. R. G. Wilson; Avery County, 95 operations with Dr. John W. MacConnell; 11 counties, 1,094 operations, 478 paid and 616 free, percentage of free operations being .56.

The Secretary called to the attention of the Board the following resolution adopted by the Section on Eye, Ear, Nose and Throat at the last session of the State Medical Society held in April, offered by Dr. Daniels:

"Resolved, That it is the sense of the Section on Ear, Eye, Nose, and Throat of the Medical Society of the State of North Carolina go on record as disapproving any further tonsil and adenoid clinics as conducted through or by the State Board of Health."

The committe from the Section composed of Doctors V. M. Hicks, R. L. Daniels, and J. P. Matheson, originally appointed in 1925 for the purpose of coöperating on the part of the Section with the Board in arranging plans for the conduct of these clinics, had reported that it was the sense of the Committee that the clinics should be dispensed with, and the Committee had asked that it be discharged, which request was granted.

The Secretary explained that the last meeting of the committee with representatives from the Board had been in 1925, and that since that time the modus operandi then agreed upon and approved for the conduct of clinics had been strictly adhered to by the Board, and that subsequent conferences had not been requested by the committee. He also explained that, in accordance with the State law, inspection work among a large number of counties had been performed by field representatives of the Board, and that in accordance with existing policy preliminary arrangements had been made for the holding of clinics in 18 counties. He had deemed it unwise to disturb such arrangements pending definite action by the Board, and to date 11 such clinics had been held, with seven to follow. The Secretary suggested that the action of the Section on Eye, Ear, Nose and Throat brought definitely before the Board a question of general policy on which the Board should act.

There was considerable discussion in which virtually all members participated at the conclusion of which Dr. Orr offered the following resolution, seconded by Dr. Thompson, which was unanimously adopted:

"Resolved, that in the future when any matter of policy shall arise which affects both the Medical Society of the State of North Carolina and the State Board of Health, such matters of policy on the part of the Board shall be negotiated with the Society through its constitutional channels, and not with any of the constituent Sections of the Society."

Mr. Stowe suggested that material financial saving might be effected through the sale of biological products through the Laboratory by raising the price of some and increasing revenue. He particularly cited neosalvarsan. There was discussion but no action.

President Crowell expressed the opinion that it would be wise to have two meetings of the Board each year, and quarterly meetings of the Executive Committee.

There were expressions of confidence in and appreciation of the work of the Secretary and the Executive staff expressed by Doctors Thompson and Anderson, and upon motion of Dr. Thompson, seconded by Dr. Anderson, the Board unanimously adopted a vote of confidence and appreciations for such work.

The Secretary briefly explained the expansion in dental service and particularly in dental educational work being conducted under the direction of Dr. E. A. Branch, highly praising Dr. Branch's successful efforts.

There being no further business, upon motion of Dr. Tucker the Board adjourned.

CHAS. O'H. LAUGHINGHOUSE,
Secretary.

ANNUAL MEETING OF BOARD

APRIL 27, 1930

The Board met in annual session in the Carolina Hotel at 8 P.M. with President Crowell presiding and present Dr. E. J. Tucker, Dr. Thos E. Anderson, Dr. D. A. Stanton, Dr. Cyrus Thompson, Dr. L. E. McDaniel, Dr. Chas. C. Orr, and Mr. James P. Stowe.

At the request of the Secretary, Dr. H. H. Bass, Chairman of the North Carolina Section of the American Society for the Control of Cancer, presented his report, prepared for the Conjoint Session, as follows: (See page 175 of this report.)

There was general discussion and approval of the report of Dr. Bass, and the thanks of the Board were expressed for the excellent work accomplished.

At this point upon suggestion of the President, an invitation was extended to Dr. L. A. Crowell, President of the Medical Society of the State of North Carolina, to sit with the Board, and Dr. Crowell was escorted into the meeting room and remained until near the end of the session.

Minutes of the last annual meeting at Greensboro and of the subsequent special meeting at Raleigh were read and upon motion approved.

The President requested a report from the Secretary on account of the Committee on Revision of Embalmers' Rules and Regulations. The Secretary explained that the Funeral Directors Association of the State for presentation to the next session of the General Assembly and that the proposed law covers the rules and regulations suggested. He further stated that the proposed law had been submitted to the Secretary of the Medical Society for criticism and suggestions.

The Secretary explained the health contest among cities promoted by the United States Chamber of Commerce and stated that Greensboro and Durham had obtained gratifying ratings for cities among the cities of the country in their respective population classes, Durham ranking fifth and Greensboro third.

The Secretary stated that plans for a training station for health officers and public health workers at Duke University are progressing satisfactorily. In this connection he stated that through the Rockefeller Foundation fellowships for special study had been secured at Harvard University for Dr. L. J. Smith, County Health Officer of Wilson County, Dr. G. F. Reeves, County Health Officer of Nash County, and Dr. T. C. Britt of the Durham County Health Department, and at Vanderbilt University for Dr. Z. P. Mitchell, County Health Officer of Halifax County.

The Secretary explained that efforts are being made in coöperation with the State Veterinarian, to eradicate contagious abortion from the dairy herds of the State, and that all dairy herds at State institutions are being checked. To date careful examinations at the State Laboratory of Hygiene have disclosed only six possible cases of undulant fever in the State.

The work of Dr. Branch, Director of Oral Hygiene, was discussed at some length and there were many expressions of commendation by different members.

The annual report of the Secretary, prepared for presentation before the Conjoint Session, was read and upon motion of Dr. Tucker, seconded by Dr. Orr, the same was approved. The report as presented is as follows:

ANNUAL REPORT TO THE CONJOINT SESSION OF THE NORTH CAROLINA STATE BOARD OF HEALTH AND THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA—1930

It is good to be directed by legal enactment and permitted through your courtesy to make a report of the progress of the State Board of Health for the fiscal year of 1929-30.

Since our last report, with the exception of the Bureau of Life Extension and the Bureau of County Health Work, every Bureau of the Board has functioned to its full capacity and without material change in policies or activities, details of which will be published in the Biennial Report, expected from the press before the Legislature convenes in January.

The Bureau of Life Extension has been discontinued, Dr. F. R. Taylor, its efficient Director, having carried the message of periodic health examinations to all the rural counties and to the schools of higher learning in the State. We are happy to advise that Dr. Taylor's activities were received most cordially by the profession and the public and we are informed that among other things a number of physicians have employed office nurses and find them to be most satisfactory assets, both professionally and financially. Periodic health examinations are being carried on more generally in the State than heretofore and physicians who have given the work particular attention, express universal satisfaction with results.

Dr. C. N. Sisk having resigned as Director of County Health Work, and Dr. A. B. McCreary having succeeded Dr. H. A. Taylor as Epidemiologist, the Bureau of County Health Work per se has been abolished and is being furthered from the Executive Office, the work being under the immediate supervision of Dr. H. A. Taylor, Deputy State Health Officer.

Instead of coöperating financially with county health departments as formerly, the future policy will be to give financial assistance to specific activities to be agreed upon by county health departments and the Board of Health, this policy to become effective in July. Insofar as possible, it is our purpose to encourage county boards of health to transfer the medical attention of county charges to the practicing physicians of the county, so that county health officers, particularly those with lean budgets and sparse personnel, can give more nearly their entire attention and time to health education and other activities embodying the fundamentals of actual health work. We have already changed the plan of record keeping in county health departments from the Cost Equivalent System, which puts a specific price on every health activity, to the Appraisal

Form of evaluating county health work. This plan does not seek to discover weaknesses in county health department administration, but it does seek to find out a health department's needs, so that the county can perfect a plan of activities, commensurate with its budget and the quantity and quality of its personnel.

The Appraisal Form puts us in position to find out what is lacking in health departments. It gives an insight into the possibilities of departments. It recalls the things that ought to be done. It gives a chance to profit by group judgment and by a fair and just comparison. It assists in finding facts and enables a health department to check itself against itself, or in other words, to check itself as it now is with itself as it may desire to become; just as a golfer playing not against himself, but against par. If, for example, a county health officer is deciding upon measures to control a communicable disease, the appraisal form assists him in taking account of its seriousness as a disease causing death and disability. It helps to decide the degree of communicability, the extent to which the disease can be prevented, the essential features for prevention, and the cost involved. The appraisal form gives the consensus of opinion on the essential details of health work. Its standards are not final. On the contrary, they will be revised from time to time, by a National Committee of the American Public Health Association; the future revisals being dependent upon the newer knowledge of health measures, health department policies, and practices.

Since our last report, the State has in certain sections become more or less stampeded because of the existence of undulant fever. According to the Laboratory of Hygiene, there have been six cases found in the State within the fiscal year with no deaths. We are in position to advise that as yet undulant fever has not come to be a serious problem in North Carolina. We are giving it continuous study and up to this report we have taken no definite action further than:

(1) To have every blood specimen received by the Laboratory for a Wassermann or a Widal examination to be examined also for undulant fever.

(2) To make a definite arrangement with the Department of Agriculture to eliminate affected cows from every herd in the State as rapidly as is feasible and practical.

Through a coöperative arrangement with the United States Public Health Service and the Rosenwald Fund, we are putting on an experiment for syphilis control among the negroes in a rural county. We are getting Wassermanns from the negroes and we are preparing to treat the positive cases by such plans as are outlined by the United States Public Health Service, the treatment being carried on with the consent and with the coöperation of the local medical society.

Cerebro-spinal meningitis is evidencing itself in practically every section of the State. The cases are sporadic; the death rate is high; but so far, no section has suffered an epidemic. We have given the physicians and the public, through the press, such information as we have concerning the number and location of the cases. We are advising immediate isolation on the appearance of prodromal symptoms, followed by spinal puncture and the sending of specimens of spinal fluid to the laboratory. And, in case the fluid is found to be cloudy, we are advising the administration of anti-meningo coccic serum without delay. We are also in position to supply anti-meningo coccic serum at cost to the physicians of the State.

Pellagra is increasing in North Carolina by leaps and bounds. We find that many of the patients have no physician. We are endeavoring to get assistance from the Home Demonstration Agents situated in the counties, who are being requested to visit indigent cases of pellagra in order to teach them the value of a balanced ration and to show them how to cook properly the food that makes up such a ration.

You will recall that Dr. H. H. Bass was appointed by the Medical Society of the State of North Carolina as chairman of the North Carolina Society for Cancer Control, he to work in coöperation with the American Society for Cancer Control and with the Board of Health. The last Legislature incorporated $5,000 in the budget of the State Board of Health with the understanding that we were to coöperate with Dr. Bass, furnishing him such financial assistance for a stenographer, travel, postage and printing, as the appropriation for cancer control with its legally prescribed limitations would allow. Dr. Bass, in coöperation with the State Board of Health, has without salary done a most excellent piece of work and I am asking that this Conjoint Session permit him to make his own report.

Fifty years ago the First Biennial Report of the State Board of Health was submitted to his Excellency, Governor Thomas J. Jarvis. Henry Ford says "history is bunk." Be that as it may, we believe it not only timely but essential to remind this Conjoint Session of the fact that its State Board of Health has completed its first half century of existence. If we dared presume upon your time sufficiently to present the high lights of the Board's progress, the story would read as a veritable romance. Indeed when we keep in mind the fact that it has lived and moved and had its being contemporaneously with the development of a State, emerging as it has from the despond and seemingly insurmountable chaos and poverty of the period of reconstruction, following the Civil War, the Board's development and expansion is nothing less than miraculous. The view in retrospect, however, covers so many years, developments and policies, and contains such a wealth of material interwoven with the State's progress in toto, that we will forego allusions to the past except to say that the loyalty through the years of the General Assembly, this Society, the press and the public; awakened, directed and stimulated, as they have been by the men to whom the Board has been entrusted, has given us a firm and sound foundation on which to build a satisfactory service for the future.

The State has come to know that there can be no real life or happiness where the public's health is not provided for; that the State is in the discharge of its first duty when it seeks to maintain the chief aim of existence; that the care of the health of the people and the respect for the government of the people is the first duty of the statesman; that whatever is needed for the establishing and maintaining of the public health must be provided; that health comes first in the science of political economy; that it affects most vitally the wealth of a nation and the prosperity of a people. The physicians of the State have come to appreciate the value of an expressed understanding and agreement between themselves and the Board and by the proclamation of this Society have gone on record in defining the Board's field of endeavor and directing it to engage in any practice or policy provided for in the legislative acts of the State, which has to do with the prevention or treatment of disease and which may include:

(1) Legislation which provides for the education of the general public in matters of personal hygiene, giving the people a higher appreciation of the value and use of medical science through printed matter, addresses, moving pictures, visiting nurses and other means of approved educational value.

(2) Legislation which provides public laboratories for assisting the profession in the diagnosis of specimens of pathological material and for providing the profession with various biological products of preventive and curative value.

(3) Legislation which provides for immunization by vaccines and sera of the general public against smallpox, typhoid and other infectious diseases, for which approved vaccines and sera are available.

(4) Legislation which provides for the reporting of births, deaths and communicable diseases and prescribes measures for the restriction of the spread of contagion.

(5) Legislation which provides for the physical examination of school children and the detection of those which are retarded, and which retard their classmates, by defects, so frequent among the school population, as to have appropriately acquired the term, "Common defects of school children"; to the practical end that the finding of such defects will stimulate an interest in both local profession and public that will result in their correction.

(6) Legislation which provides dispensaries for the examination and treatment of diseases such prevalence and far-reaching effect on the public health as to constitute large and unnecessary handicaps to social progress. For example, dispensaries for venereal disease and dispensaries for the treatment of trachoma and hookworm disease.

This is the highway upon which the Board of Health is traveling. It will not depart from it and because it will not, it cannot find itself in any private drives or boulevards that happen to lead into forbidden places and personal preserves.

"Train a child up in the way he should go, and when he gets old, he will not depart from it", is evidenced by the fact that the head and heart of the medical profession of North Carolina, has been so sincerely and unselfishly interested in the development of the Board, that peace, confidence, and concord reign among us; and we come before you today with complete faith in your continued support, and with the full determination of making the next fifty years of even greater accomplishment than the past half century has been.

This is a startling prediction, but it is founded on the record wherein it is told that in 1888 we had 3,966 2/3 deaths from diphtheria in every hundred thousand of our population. Today we have but twelve. In 1888 we had 4,450 deaths per hundred thousand from typhoid fever,—today we have 6.3. Keep faith with us and give us generously of yourselves, and before 1980 we will reduce the death rate from whooping cough and measles as dramatically as in the last half century we reduced diphtheria and typhoid fever. The maternal death rate will fall from its present disgraceful figure to the deaths that come from unavoidable accidents in labor. The toxemias of pregnancy will have passed; the traumatism of labor will be lessened; obstetrical infections will be no more. The common defects of preschool and school children, which have as their sequel the degenerative diseases, will be largely a matter of history; scarlet fever will be eliminated; deaths from smallpox will have been banished. Venereal disease will be more nearly controled. Cancer may be conquered. Tuberculosis will have taken its place in history with cholera and plague. Sanitation and prevention will have become habit among men.

Have we hitched our wagon to a star? We have because we believe in you; and we know that after the verb "to love", "to help" is the most productive verb in all the world.

"Faith, with works, will remove mountains", saith the Master. So, if the profession will but enlist and determine to fight constantly, broadly and unselfishly under the flag of "Disease Prevention"—in 1980 a nobler race of men will walk beneath the stars and wander by the shores. We cannot guess their glory, but methinks, the sky and sea will bring to them more of gladness than they brought to you and me.

The Secretary briefly summarized final report of Dr. F. R. Taylor, Director of the Life Extension Unit, and was directed to incorporate the complete report in the minutes. The report follows: (See p. 118 of this Report).

The Secretary presented report of Mr. H. L. Stanton of work accomplished in orthopedic clinics which upon motion of Mr. Stanton, seconded by Dr. Thompson, was approved, the report being as follows: (See p. 180 of this Report).

The Secretary announced that the Bureau of County Health Work as a separate division had been discontinued, and the resignation of Dr. C. N. Sisk, director of the Bureau, requested. The work is being consolidated into the division of Administration with Dr. H. A. Taylor appointed Deputy State Health Officer, and assigned to supervision of county health work. To succeed Dr. Taylor as State Epidemiologist the Secretary stated that he had secured the services of Dr. A. B. McCreary, county health officer of Richmond County, his appointment becoming effective on May 1. In connection with these changes the Secretary explained that two important changes were being effected in the relations between the Board and organized county health departments: (1) Financially the Board has heretofore been contributing funds on the basis of fifty percent of a county budget up to $5,000 annually where personnel employed consisted of health officer, or health officer and clerk, and an additional sum of $1,250 annually if a public health nurse also was employed. These contributions have been made without regard to salaries paid local personnel and has meant State participation in all items of local budgets. Beginning with the next fiscal year the counties affected have been advised that financial aid in the future will be given strictly on the basis of personnel employed as follows: (a) The

Board will give fifty per cent of the salary and travel of the county health officer up to a maximum of $5,000 annually, making the State's obligation on this item a maximum of $2,500; (b) fifty per cent of the salary and travel of one public health nurse, or one sanitary inspector, up to a maximum of $2,100 annually, making the State's obligation on this item a maximum of $1,050. Under this plan the Board will financially assist every county on the basis of essential personnel, with the maximum amount available to any county being $3,550 annually. By this means it is expected that the appropriation for State Aid to counties will be sufficient to permit the organization of probably four additional counties during the next year. It will further leave the employment of clerical help and contingent items of expense entirely a matter of county responsibility, where such responsibility properly rests. (2) The basis of evaluating the service rendered by county health departments is being changed from the financial equivalent system adopted in 1922 to the appraisal system recommended by the Committee on Administrative Practice of the American Public Health Association. Under the cost equivalent system a definite cash value was assigned to all items of public health work and the health officer was expected to produce in items of work a cash equivalent of the funds expended in doing such work. It was discretionary with the health officer as to what items of work should be accomplished, and in practice it developed that frequently non-essential items of work were concentrated upon in order to make a good showing on paper and necessary items were neglected. Under the system recommended by the Committee of the American Public Health Association a survey of each county can be made which will develop the essential public health needs of that county and the health officer can be definitely advised with regard to the program of work to be undertaken that will best serve the public health needs of his county. In this way particularly valuable assistance can be rendered those counties which are handicapped by inadequate personnel. As a further step in assisting county health departments, in the contracts for the next fiscal year will be written a section requiring that all clinical practice be excluded except such as is required by law for the care of county charges and certain physical examinations, thereby divorcing insofar as possible the practice of medicine from the public health program. The Secretary further explained that efforts were being made to interest counties unable financially to support public health programs to unite with neighboring counties to form two or three joint county units.

Following general discussion upon motion of Dr. Thompson, seconded by Dr. Orr, the changes in policy with regard to county health departments were unanimously approved.

The Secretary presented the matter of tonsil and adenoid clinics as conducted by the Board since 1918, reviewing the plans and methods employed and the relationship existing between the Board and the specialists of the State. During the past year medical inspection service through school nurses employed by the Board, in accordance with the law requiring inspection enacted in 1917 was given in twenty counties as follows: Alleghany, Franklin, Moore, Alexander, Carteret, Wilkes, Edgecombe, Haywood, Jackson, Clay, Caldwell, Swain, Alamance, Hyde, Graham, Orange, Pamlico, Scotland, Columbus, Bladen. A total of 66,253 children were inspected and the following defects discovered:

Nutrition	13,317
Hearing	1,296
Vision	7,506
Teeth	25,303
Throat	33,415
Orthopaedic	226
Posture	879
Breathing	4,659
Skin	1,210
Others	8,000

During the past summer the Secretary reported tonsil and adenoid clinics held in the counties of Franklin, Chatham, Moore, Anson, Alexander, Madison, Yancey, Mitchell, Avery, Watauga, Ashe, Wilkes, Stokes, Randolph, Hoke, Montgomery, Bertie and Martin, with 1,794 operations in these eighteen counties, of which 771 paid the nominal fee of $12.50 and 1,023 were free.

The Secretary suggested that the Board should definitely express itself upon this question affecting a matter of policy and after discussion Mr. Stowe moved, seconded by Dr. Thompson, that the tonsil and adenoid clinics as heretofore conducted by the Board be continued in accordance with plans to be formulated by the Secretary, and upon vote the motion was adopted unanimously.

The Secretary presented details of plan submitted by the United States Public Health Service jointly with the Julius Rosenwald Fund for Cooperation with the Board on a venereal disease control demonstration twofold in its program: (1) It is proposed that a syphilis treatment project among negroes shall be undertaken in a county in which there is a negro population of approximately 25,000, largely rural in character. A clinician and a nurse will be employed to devote their entire time to the carrying out of the program which will call for an initial Wassermann survey of approximately 20,000 negroes as far as practicable and for the treatment of the infected individuals found in this group over a period of one year so far as may be necessary. At the end of this period of treatment it is proposed to make another Wassermann survey for the purpose of determining the results of the treatment; (2) an assistant State Epidemiologist will be employed who in addition to the supervision which he will give to the treatment demonstration project will also devote a part of his time to the stimulation of local venereal disease control activities and to the general supervision of work developed in various localities. It is planned that he shall work with the local physicians throughout the State for the purpose of developing their interest and coöperation in the prevention of venereal diseases, particularly through the providing of effective treatment and the personal education of patients. The duties of the venereal disease control officer will include also the development of local clinics for the treatment of indigent persons and of an educactional program in high schools, normal schools and other educational institutions in the State, together with effort to bring about coöperation between health officials and the law enforcement agencies necessary to procure proper control of infected individuals who so conduct themselves as to be a public menace. To finance the program the Julius Rosenwald Fund offered to contribute $10,000, the United States Public Health Service $1,650 in personnel, the State Board of Health to provide $15,000. The Secretary explained that the proposition was submitted to Governor Gardner and heartily approved by him, and approved by the Budget Bureau on January 3, and that thereafter Pitt County had been selected by a representative of the United States Public Health Service, after visits to a number of eastern counties, as offering the best opportunity for successfully carrying forward the proposed county project, and that personnel had been employed and the program inaugurated in March.

On motion of Dr. Thompson, seconded by Dr. Stanton, the venereal disease program was unanimously approved.

Memorandum No. 159 from the Budget Bureau, dated April 16, 1930, was read by the Secretary, this being a review by the Governor of the financial condition of the State, and directing that a 20% reduction in appropriations to State departments and institutions be arranged for the fiscal year beginning July 1, 1930. The Secretary was directed to rearrange the budget of the Board to meet the directions from the Governor.

Prospects for the next biennium were discussed and there was a consensus of opinion that in view of the present financial condition of State finances, plans for the next biennium should not be considered until as late in the year as might be possible to get the requested biennial budget for 1931-33 before the Advisory Budget Commission in November.

The Secretary presented certain proposed amendments to the rules and regulations for the sanitary management of hotel and cafes, explaining that the rules and regulations now in effect had been adopted by the Board about ten years ago and that through the years of practical application it had been found that certain alterations to meet changed conditions were necessary. The amendments proposed were developd by a committee of the State Dairy and Food Officials Association, and were being transmitted by the Director of the Bureau of Sanitary Engineering and Inspection with the recommendation that they be adopted.

Dr. Thompson thereupon moved, with second by Dr. Stanton, that rules and regulations for the sanitary management of hotels and cafes heretofore adopted by the Board be repealed and in lieu thereof the following rules and regulations be adopted, to be effective from and after their publication, and upon vote the motion was adopted unanimously:

REGULATIONS FOR THE SANITARY MANAGEMENT OF HOTELS AND CAFES

Office and Lobby

1. Windows of the office and lobby shall be clean and should equal one-eighth of floor space.
2. Illumination by artificial lights shall be sufficient to permit easy reading of ordinary newspaper type 18 inches from the eye.
3. Floor, walls and ceilings must be clean and free from spit marks, dust, dirt, cobwebs and filth.
4. Cuspidors should be kept in sufficient numbers for the accommodation of the guests and shall be maintained in a sanitary manner.

5. Charges for rooms with or without meals, in accordance with the plan or plans on which the hotel is operated, giving the exact transient rate shall be kept posted in a conspicuous place.

Wash Room

1. The lighting of the wash room must be sufficient to permit the easy reading of ordinary newspaper type 18 inches from the eye.
2. Windows must be kept clean, and screened from March 1 to December 1.
3. Ventilation must be sufficient to prevent foul odors. A door which is the only opening in a toilet room shall not constitute sufficient ventilation.
4. Floor, walls, ceiling, lavatory, urinals, and commodes must be clean.
5. Individual towels, either cloth or paper, must be supplied.
6. Soap, preferably liquid or powdered soap, shall be provided.
7. Lavatories and commodes must be kept in god repair and in working order.

Dining Room

1. Windows must be kept clean. The window space should equal at least one-eighth of the floor space. Adequate ventilation must be provided, either by sufficient window area or special ventilating devices.
2. Windows and doors must be thoroughly screened and screens kept in repair from March 1 to December 1.
3. Artificial illumination must be sufficient to permit the easy reading of ordinary newspaper type 18 inches from the eye.
4. Floor, walls, and ceiling must be clean and free from grease marks, dirt, dust, filth, and cobwebs.
5. Table linen and table tops must be clean.
6. Tableware must be clean.
7. Food, which is in process of decomposition, adulterated or otherwise unwholesome shall not be served to customers.
8. Portions of food once served to customers shall not be served again to customers.
9. The dining room must be kept free from flies.
10. All necessary fly control measures shall be practiced.

Kitchen and Pantry

1. Windows should equal one-eighth of the floor space and must be kept clean. Where necessary to prevent excessive grease, smoke and odors, ventilating fans or range hoods, or both, must be provided.
2. Windows and doors must be screened from March 1 to December 1, with screens kept in good repair.
3. Artificial illumination of the kitchen must be sufficient to permit the easy reading of ordinary newspaper type 18 inches from the eyes.
4. Floors, walls, and ceilings must be clean, free from grease spots, dirt, filth and cobwebs.
5. Cooking utensils must be kept clean and all except utensils in which frying and baking are done must be free from grease as indicated by ordinary handling.
6. (a) Every dish, knife, fork, spoon, drinking glass, cup or other utensil used in the service of patrons shall, prior to such use, be thoroughly washed with hot water and a suitable detergent, placed upon a drain board and subjected to boiling water to the extent that following this process no hand-drying of the aforesaid dishes will be necessary. (b) The means of dish washing shall consist of a double vat sink lined with impervious material and directly connected with the city sewer or other approved outfall. Drain boards connected and draining to the wash sink shall in all instances be installed and shall be of sufficient size to adequately accommodate the business. An adequate and approved means of heating an ample supply of running water shall be installed and connection shall be made so that each vat of the wash sink may receive service.

(c) If in the opinion of the duly authorized deputy or agent of the State Board of Health the spirit and intent of clause (b) of this section is not being complied with by reason of the volume of dishes used in serving the public, dish washing machines of approved type shall be required to be installed and constantly used for the washing and cleansing of all utensils used in connection with serving the public.

7. No hand drying of dishes shall be permitted.
8. Flies, roaches, insects and rodents must be eliminated.
9. All necessary fly control measures shall be practiced.
10. Cupboards and other storage spaces must be kept clean and free from offensive odors and musty smells. The contents shall be neatly arranged.
11. Refrigerators must be clean and free from musty, putrescent, or other disagreeable odors.
12. Food shall be prepared and handled in a sanitary manner and shall be kept under cover, except raw vegetables which are to be cooked at all times when not in process of preparation and serving.
13. Milk shall be of the highest grade available.
14. Garbage shall be kept in covered cans and shall be removed every day. Cans shall be kept clean.
15. No sleeping quarters shall open direct into the kitchen, and the kitchen shall not be used as a sleeping room, or for changing or storing clothing.

Halls and Stairs

1. Light, either natural or artificial, or both, sufficient to permit the reading of ordinary newspaper type shall be provided.
2. Floors, walls and ceiling must be clean and free from spit marks, dust, cobwebs, and excessive fly marks.

Bedrooms

1. Windows must be clean and equal in area to one-eighth floor space.
2. Air space in the proportion of 500 cubic feet for each intended occupant shall be provided; also not less than 60 square feet of floor space for each intended occupant.
3. Screens shall be kept in windows throughout the entire fly season and maintained in good repair.
4. Artificial illumination must be sufficient to permit the easy reading of ordinary newspaper type 18 inches from the eye.
5. Shades, movable, or blinds having hinges or shutters or slats freely movable and in good working order, which will effectively exclude light when drawn, shall be provided for the windows of each sleeping room.
6. Crockery must be kept clean and provided in sufficient amount for each person.
7. Beds must be placed at least two feet from one another when there is more than one bed in a room and so arranged that the air can circulate freely under each. In no hotel shall beds, or bunks in the same room or apartment, be placed one above the other, except as temporary arrangement in the case of emergency.
8. Two sheets shall be provided for each bed. The top sheet shall be not less than 90 inches in length and shall be folded back at the head of the bed over the other covering for at least six inches. All sheets shall be of sufficient width and length to tuck under the mattress.
9. All pillow slips and sheets, after being used by one guest, must be washed and ironed before used by another guest, a clean set being furnished each succeeding guest.
10. Walls, ceiling and floors, including carpets, must be clean.
11. Vermin, bugs, and roaches, in sleeping rooms must be eliminated.
12. Every room, after being occupied by any one known or suspected to be suffering from tuberculosis, diphtheria, or any contagious disease, must be thoroughly disinfected as prescribed by the State Board of Health before further occupancy; and every room after being occupied

by any one known or suspected to be suffering from measels or whooping cough, must be thoroughly aired for twenty-four (24) hours before subsequent occupancy.

13. Rates of charges for each room, with or without meals, giving the rate per person per day or week and the rate for each person in the room, must be posted conspicuously in each room.

Water Supply

1. The water supply, conveniently located, shall be obtained from an approved public water supply when available and in other instances shall be obtained from a source not considered dangerous or potentially dangerous as determined by a sanitary survey by a representative of the State Board of Health and by bacteriological examination one of or more samples of water tested by the State Laboratory of Hygiene.
2. A sample of the water used, except in case of public water supplies, must be submitted by the hotel or cafe management to the State Laboratory of Hygiene twice each year for analysis with a certificate that it is the water used. If the sample is found by the laboratory to be unfit for use or if a sanitary survey shall disclose conditions rendering the water supply potentially unsafe, the further use of the water shall be discontinued until permission is granted by the State Board of Health to resume the use of such water.
3. (a) The water supply must be free from the possibility of contamination of surface drainage.
   (b) Privies, stables, hog and chicken pens must be located at least 100 feet from the water supply and under no circumstances shall they be on the slope above and draining towards it.
4. **Protection for Spring:**
   (a) When the supply is a spring it must be protected from surface drainage by a ditch or wall around it on the slope above.
   (b) It must be concreted or walled up with an overflow pipe, to prevent contamination by dipping with soiled vessels.
5. **Protection for Well:**
   (a) When a well is used for water supply it must be fitted with a pump properly and tightly adjusted through a water-proof platform which shall be raised and drain away from pump.
6. **Individual Water Supply:**
   (a) An approved angle jet fountain or a cooler or closed container with a spigot shall be provided.
   (b) Under no circumstances shall the common dipper or cup be used.
   (c) Individual single service drinking cups shall be provided when cooler with spigot is used.

Sewerage

1. Convenient accessible toilets shall be provided, kept clean and well ventilated.
2. The excreta shall be disposed of by connecting to the public sewerage system when available, by disposal through system of sewage treatment, approved by the State Board of Health, or by means of sanitary privies constructed and maintained in accordance with the State Board of Health regulations for the construction and maintenance of privies. Plans for all new systems of sewage disposal or improvements to existing systems shall be submitted to the State Board of Health for approval, and shall be governed by the provisions of sections 7117, 7118, and 7125, Consolidated Statutes.
3. The plumbing shall conform to standard plumbing practice, as specified by the "Hoover Code," State Board of Health special bulletin No. 216, "Recommended Minimum Requirements for Plumbing in Dwellings and Similar Places."

Servants

1. The management shall hold a medical certificate, given by a reputable physician or health officer for each and every cook and waiter employed in the hotel or cafe, certifying that the servant is free from tuberculosis, syphilis, and is not a typhoid carrier. Such certificate shall have been issued within twelve months of the date of inspection. No person suffering from any infectious or contagious disease shall be permitted to be employed in the handling of food in any hotel or cafe.
2. Servants handling food must be clean, both with regard to their person and clothing.
3. Cooks and other kitchen help should wear clean, white caps and coats or special dress.
4. Waiters or waitresses should wear clean, white coats or special dress.

Surroundings

1. All cisterns, tanks, or other receptacles containing standing water, must be kept screened or otherwise so covered as to prevent the entrance of flies, mosquitoes, or other disease-bearing insects.
2. Rubbish, tin cans, and accumulation of filth shall not be allowed on the premises connected with the hotel.
3. Standing pools or bogs on the premises connected with the hotel shall be drained or the surface covered with oil. The management should attempt to have such conditions in the vicinity remedied.

The Secretary explained that considerable difficulty was being encountered in securing reports from physicians of the occurrence of pneumonia, and that the requirement that pneumonia cases be reported was complicating reports of cases of influenza, and expressed the opinion that from a public health viewpoint the reporting of pneumonia is of neglible value.

Dr. Stanton moved that pneumonia be omitted from the list of diseases made reportable by the Board in accordance with provisions of Section 7151 of the Consolidated Statutes, which motion was seconded by Dr. Thompson, and upon vote was unanimously adopted.

Mr. Stowe presented the following resolution:

"Resolved, that all articles of bedding which must be sterilized in accordance with the laws of the State shall be sterilized in accordance with methods and processes to be approved by the State Health Officer."

Mr. Stowe moved the adoption of the resolution, which was seconded by Dr. Orr, and upon vote the resolution was unanimously adopted.

For the information of the Board the Secretary read paper prepared for presentation before the Public Health section of the Society.

The Secretary stated that he had planned to have each division director of the Board's executive staff to present to the Board a detailed review of the work of each division, but that such reports might more properly and advantageously be presented in connection with consideration of the budget for the next biennium. Upon motion of Dr. Anderson, seconded by Dr. Stanton, the Board voted to defer the presentation of the suggested reports until a later meeting of the Board to be called for the purpose of considering and approving the biennial budget to be presented to the next General Assembly.

There being no further business, the Board adjourned, subject to the call of the President.

CHARLES O'H. LAUGHINGHOUSE,
Secretary.

MEETING OF EXECUTIVE COMMITTEE

June 28, 1930.

Upon call of the President the Executive Committee met at 11:00 o'clock Saturday morning, June 28th, at Montreat, with present: Dr. A. J. Crowell, Dr. Cyrus Thompson, and Dr. Thos. E. Anderson.

The Secretary presented certain facts with regard to the prevalence of undulant fever in the State, pointing out that routine examinations were being made of all blood specimens submitted for examination at the Laboratory of Hygiene and that on 13 positive cases had been thus found, and that no deaths from this cause had been recorded. The committee recommended that the Secretary keep in touch with the State Veterinarian to the end that efforts be continued to carry forward the work of eradicating from dairy herds infected cattle.

Pellagra situation in the State was discussed and proposed demonstration in control measures to be carried out in Brunswick County was approved, the work to be done by Carolina Council and coöperating agencies.

After mature consideration of budget requirements, and discussion in detail of the work of the several divisions of the Board, the following resolution was presented by Dr. Cyrus Thompson, who moved that it be adopted. The motion was seconded by Dr. Thos. E. Anderson, and upon vote was adopted unanimously, the President, Dr. Crowell, expressly directed that his affirmative vote be recorded:

"Resolved, that the Secretary of the Board is hereby directed to put into effect immediately the following specific reductions in the budgets of the several divisions of the Board to the end that the total budget of the Board can be balanced in accordance with the directions given in Budget Bureau Memoranda No. 159, No 163, and No. 164; provided that in his discretion the Secretary may make minor shifts or alterations without affecting the total budget savings of $120,294 (or the exact amount which may be found necessary when the accounts of the Board are closed on June 30) which amount must be effected.

"And resolved further, that the Secretary is directed to proffer to Dr. G. M. Cooper the temporary position of Acting Deputy State Registrar of Vital Statistics with assignment to the Bureau of Vital Statistics with the stipulation that in addition to the duties as director of the Bureau of Vital Statistics he is to continue to edit *The Health Bulletin*, on the basis of a 16-page monthly issue, and to handle such general correspondence as may be referred to him."

Schedule of Reductions

Administration	
Salary increases budgeted and not paid	$ 1,340
Salary, Miss Betts, stenographer	1,500
Salary, Miss Bretsch, stenographer	1,500
Travel expense	500
Printing	6,000
	$10,840
Engineering and Inspection	
Personal Service and Travel Expense	$13,467
Equipment (detailed schedule to be supplied by Mr. Miller)	500
	$13,967

Epidemiology

Salary, Director Dr. A. B. McCreary	$ 4,600
Salary, Clerk Mrs. Morrow	1,020
Travel Expense	1,800
	$ 7,420

Maternity and Infancy

Salary, Director Dr. George Collins	$ 4,600
Salary, Sup. Nurse, Miss Fultz	2,100
Salary, Field Nurse, Miss Lamb	1,800
Salary, Field Nurse, Miss Oliver	1,800
Salary, Field Nurse, Mrs. Cherry	1,800
Salary, Field Nurse, Miss Lillian Newsome	1,460
Travel Expense above personnel	7,250
Supplies and Materials	750
	$21,560

Vital Statistics

Salary, Director Dr. F. M. Register	$ 4,600
Salary, Clerk, Mrs. Claire Partin	1,020
Salary, Clerk, Miss Evelyn Horton	960
Travel Expense	700
Postage, Telephone and Telegraph	420
	$ 7,700

Medical Inspection of Schools

Salary, Field Dentist, Dr. Nathaniel Newman	$ 2,100
Salary, Field Dentist, Dr. J. S. Moore	2,100
Salary, Field Nurse, Miss Lucile Pegram	1,800
Salary Extra Clinic Personnel (part-time)	1,500
Supplies and Materials	231
Travel Expense	3,600
	$11,331

(Note: This division operated in 1929-30 on savings of $6,363, which added to proposed savings for 1930-31, totals $17,694 or 30% of appropriation.)

Health Education

Travel Expense	$ 280
Supplies and Materials	420
	$ 700

(Note: The director, Dr. G. M. Cooper, to be assigned temporarily to duty as director of the Bureau of Vital Statistics and to carry forward educational work.)

Life Extension

Salary, Director, Dr. F. R. Taylor	$ 4,600
Salary, Technician, Mr. F. M. Hauser	1,500
Travel Expense	3,000
	$ 9,100

Laboratory of Hygiene

20% of Appropriation	$13,600

(Note: Reduction to be arranged in detail by the director, Dr. C. A. Shore.)

State Aid to Counties

Savings by reductions plus no new counties added	$16,715

Orthopedic Clinics	
20% of Appropriation	$ 2,000
Cancer Control	
20% of Appropriation	$ 500
Miscellaneous Items	
To be saved from the several miscellaneous items and in the several divisions by most rigid economy	$ 5,000

Summary

Administration	$ 10,840
Eng. and Inspection	13,967
Epidemiology	7,420
Maternity and Infancy	21,560
Medical Inspection of Schools	11,331
Vital Statistics	7,700
Health Education	700
Life Extension	9,100
Laboratory of Hygiene	13,600
State Aid to Counties	16,715
Orthopedic Clinics	2,000
Cancer Control	500
Miscellaneous Items	5,000
	$120,433

Objective

20% Appropriation—1930-31	$ 99,294
Deficit in 10% reduction—1929-31	21,000
	$120,294

The Committee directed that the action taken with regard to the budget be presented by the Secretary and Mr. Wilson to Governor Gardner for his information and approval.

Upon motion the Committee adjourned.

CHARLES O'H. LAUGHINGHOUSE,
Secretary.

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